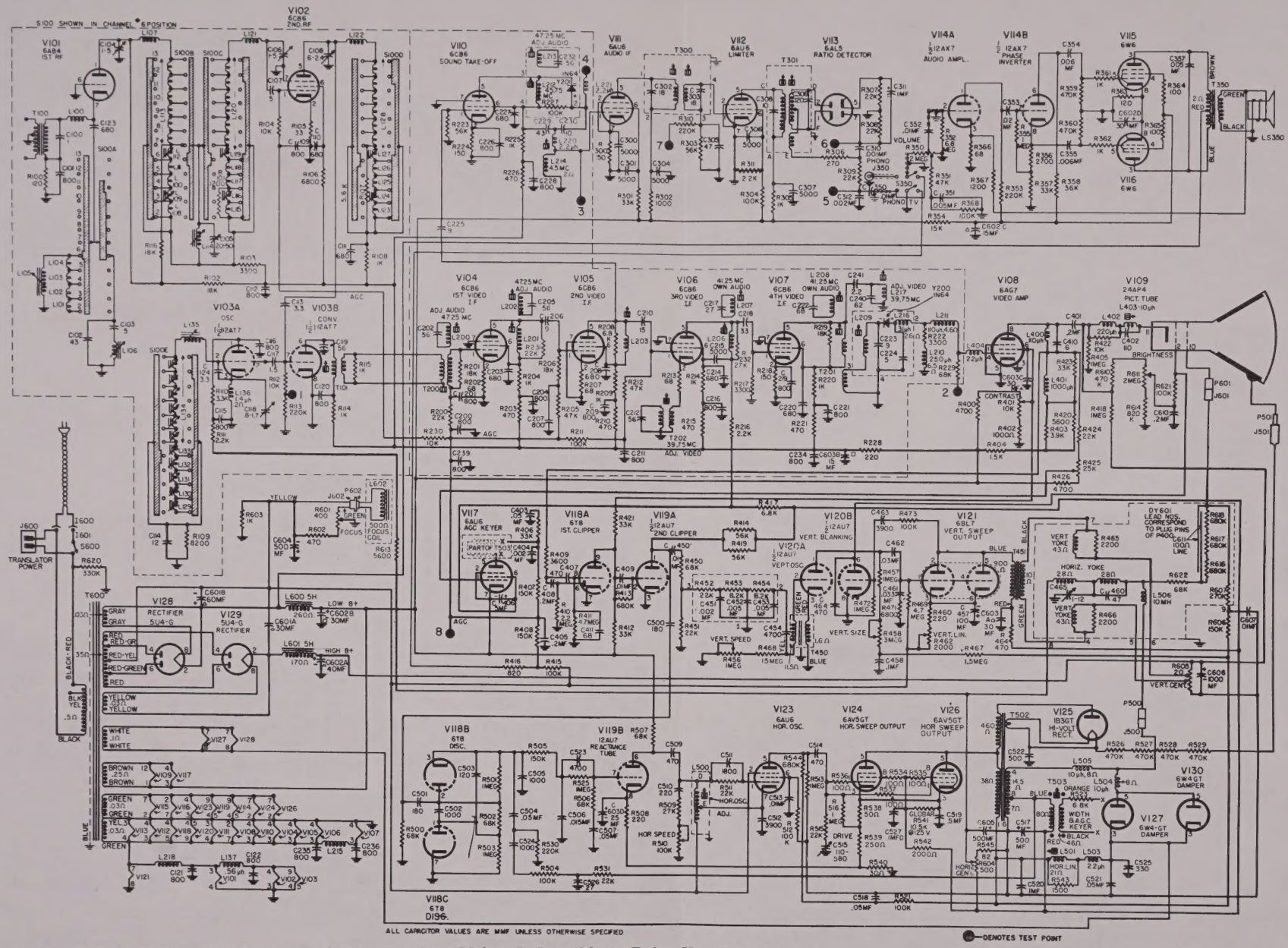
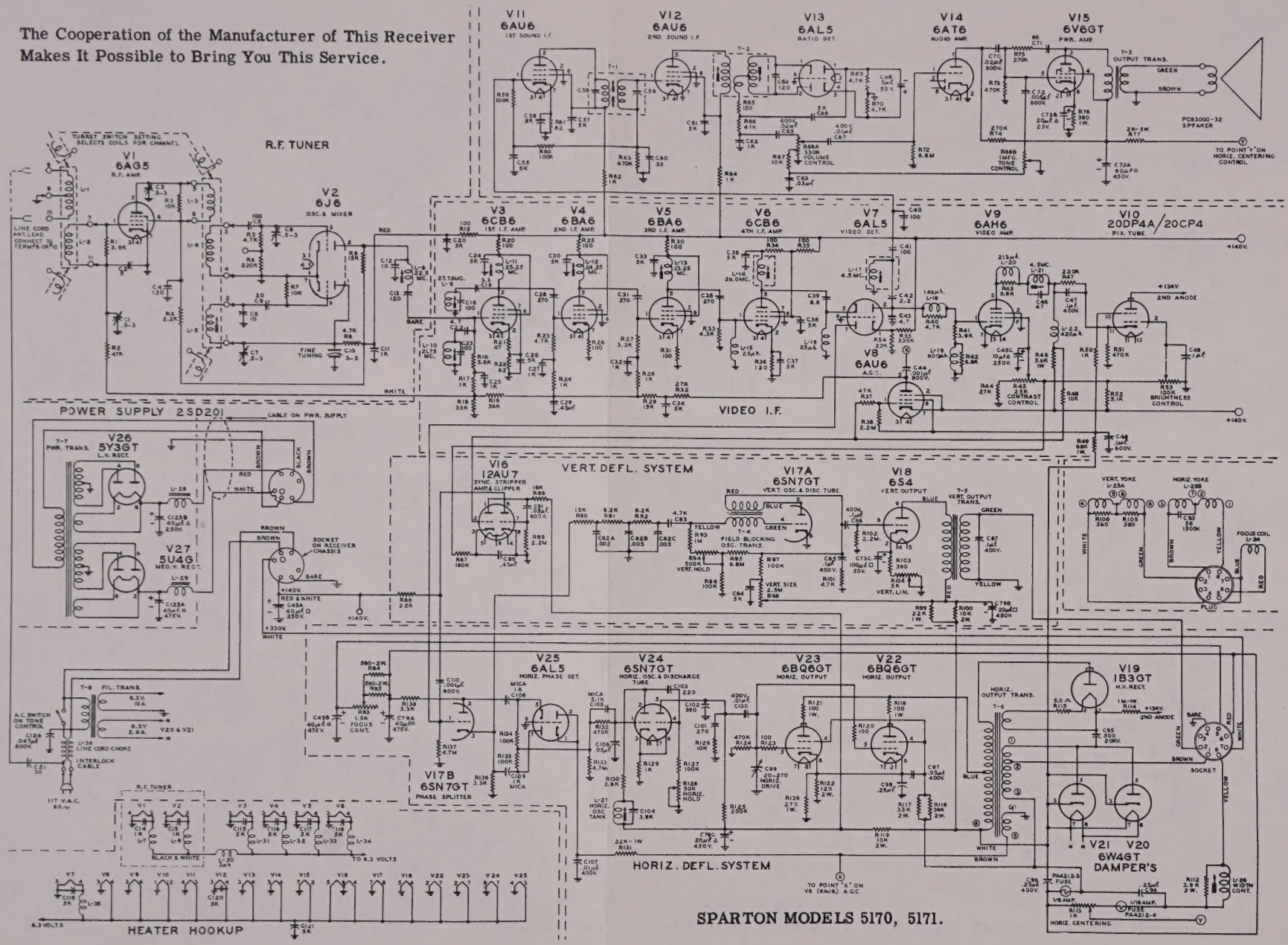


The Cooperation of the Manufacturer of This Receiver Makes It Possible to Bring You This Service.

GENERAL ELECTRIC MODEL 24C101

The Cooperation of the Manufacturer of This Receiver Makes It Possible to Bring You This Service.

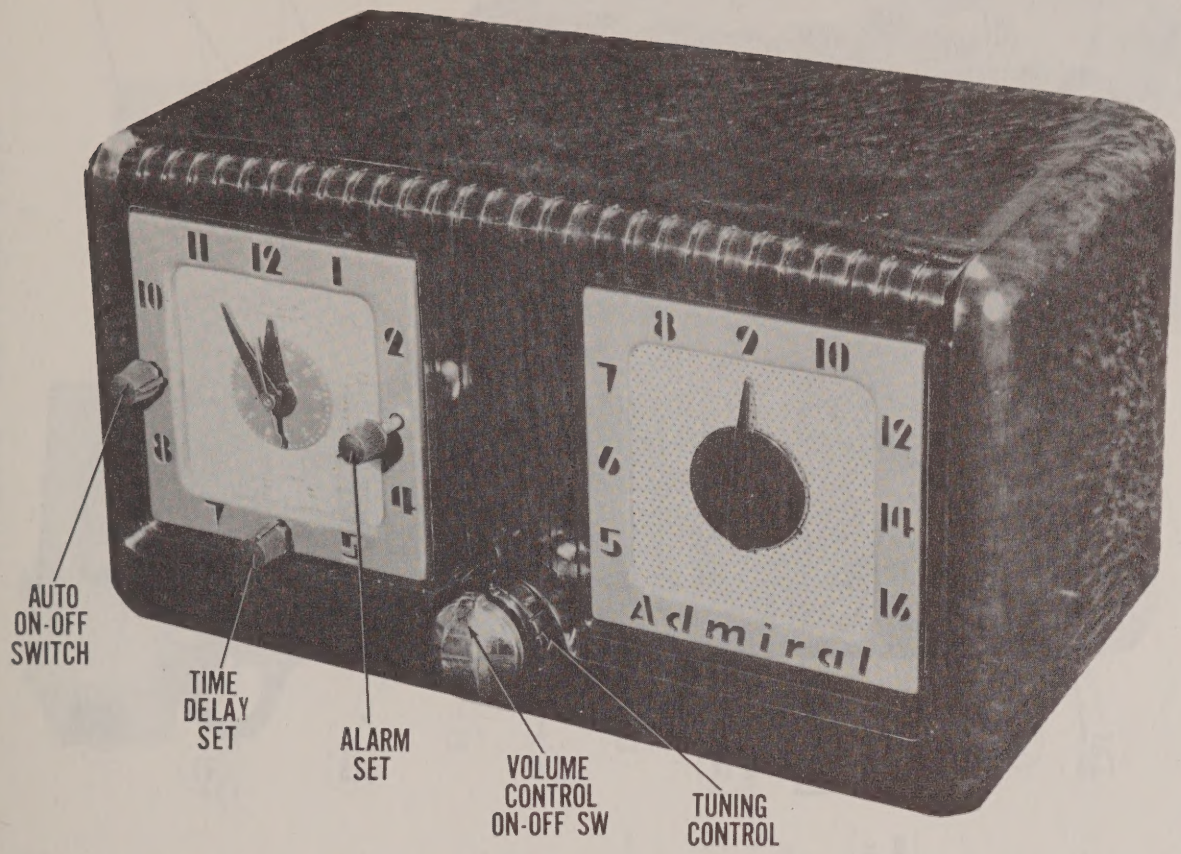

R.F. TUNER
V1 6AG5 R.F. AMP.
V2 6J6 OSC. & MIXER
V3 6CB6 1ST I.F. AMP.
V4 6BA6 2ND I.F. AMP.
V5 6BA6 3RD I.F. AMP.
V6 6CB6 4TH I.F. AMP.
V7 6AL5 VIDEO DET.
V8 6AU6 A.G.C.
V9 6AH6 VIDEO AMP.
V10 20DP4A/20CP4 PIX. TUBE
VIDEO I.F.
V11 6AU6 1ST SOUND I.F.
V12 6AU6 2ND SOUND I.F.
V13 6AL5 RATIO DET.
V14 6AT6 AUDIO AMP.
V15 6V6GT PWR. AMP
POWER SUPPLY 2SD201
V26 5Y3GT L.V. RECT.
V27 5U4G MED. V. RECT.
VERT. DEFL. SYSTEM
V16 12AU7 SYNC. STRIPPER AMP. & CLIPPER
V17A 6SN7GT VERT. OSC. & DISC. TUBE
V18 6S4 VERT. OUTPUT
V17B 6SN7GT PHASE SPLITTER
V25 6AL5 HORIZ. PHASE DET.
V24 6SN7GT HORIZ. OSC. & DISCHARGE TUBE
V23 6BQ6GT HORIZ. OUTPUT
V22 6BQ6GT HORIZ. OUTPUT
V19 1B3GT H.V. RECT.
V21 V20 6W4GT DAMPER'S
HORIZ. DEFL. SYSTEM
HEATER HOOKUP
SPARTON MODELS 5170, 5171.

PRELIMINARY DATA
The data contained in this folder is published in advance of regular PHOTOFACT Coverage

SET 137 FOLDER 1A

© Howard W. Sams & Co., Inc. 1951

ADMIRAL
CHASSIS 5G2



ADMIRAL
CHASSIS 5G2

ADMIRAL MODEL 5G22

TRADE NAME	Admiral, Models 5G21, 5G21/15, 5G22, 5G22/15, 5G23, 5G23/15 (Ch. 5G2)
MANUFACTURER	Admiral Corp., 3800 W. Cortland, Chicago, Illinois
TYPE SET	AC Operated Superheterodyne Receiver with Electric Clock
TUBES (FIVE)	Types 12BE6 Converter, 12BA6 IF Amp., 12AV6 DET.-AVC-AF, 50C5 Power Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts
RATING	.27 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not connect a .1MFD capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	250MMF	High side to stator on rear section of tuning gang. Low side to B-	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	"	"	1620KC	"	"	A5	"
3.		Loop	1400KC	Tune for max. output.	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver Adjust for maximum output.

Replace set in cabinet and tune in the 1400KC generator signal. Set dial pointer horizontal pointing to the right, (14 on dial).

HOWARD W. SAMS & CO., INC. • Indianapolis 1, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

ADMIRAL CHASSIS 5G2

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: ADMIRAL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amplifier	12BA6	12BA6	7BK	
V3	Det.-AVC-AF	12AV6	12AV6	7BT	
V4	Power Output	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	50	150	67A22-1	PRS150/50-30		BRD5315A		TVA-2450	Filter
B	30	150							Filter
C2	47		65C6-79	SI47	D6-470		GP1K-470	19C25	Osc. Grid Cap.
C3	.05	400	64B1-22	P488-05	DF-503	PTE4S5		4TM-S5	Tuning Cap. Isolation
C4	.1	200	64B1-30	P288-1	DF-104	PTE4P1		2TM-P1	AVC Filter
C5	220		65C6-80	SI220	D6-221		GP2K-221	19C13	Diode RF Filter
C6	.01	400	64B1-25	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Audio Coupling
C7A									AF Amp. Plate
B	.005	400	63A5-4 ♦	P688-005	PC-70	PTE6D5	GP2-333-502	6TM-D5	Audio Coupling
C									Output Grid
C8	.02	400	64B1-24	P488-02	DF-203	PTE4S2		4TM-S2	Output Plate
C9	.1	200	64B1-30	P288-1	DF-104	PTE4P1		2TM-P1	Line Isolation
C10	.047	400	64B8-28	P488-047	DF-503	PTE4S5		4TM-S47	Line Filter

♦ Items C7A, C7B, C7C, R6A, R6B, are combined in one unit.
When replacing with individual components C7A, C7C should total 250MMF.

CONTROLS

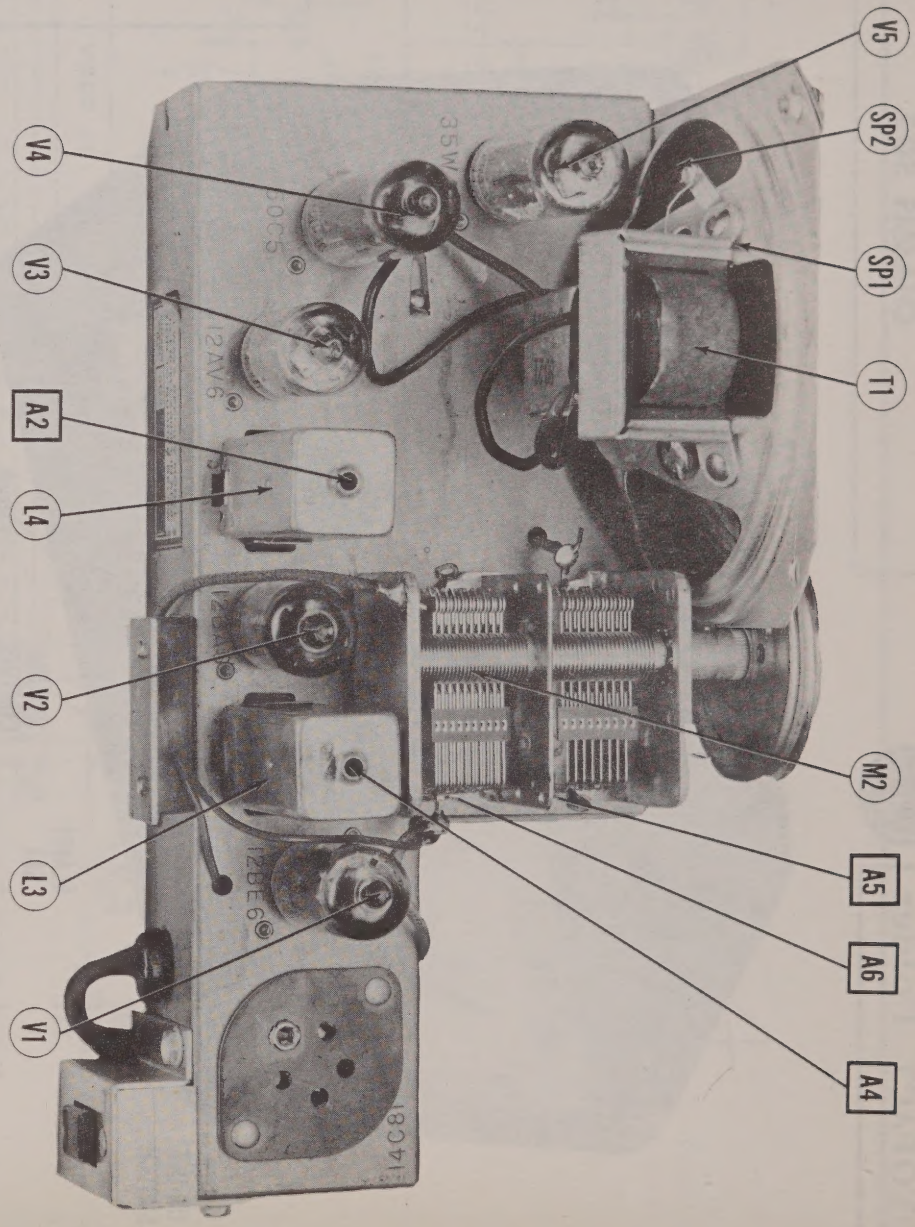
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ADMIRAL PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	1Meg.	½	75B1-41	Q13-137	AG-63-Z	BSK-70-S	Volume Control
B	Shaft		Not req.	Not req.	KSS-3	Not req.	Attach to R1A per instructions
C	Switch		Not req.	76-1	SWB	Not req.	Attach to R1A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ADMIRAL PART No.	IRC PART No.	IDENTIFICATION CODES
R2	22KΩ	½	60B8-223	BTS-22K	Osc. Grid
R3	100Ω	½	60B8-101	BTS-100	IF Amp. Cathode
R4	1Meg	½	60B8-105	BTS-1Meg	AVC Network
R5	4.7Meg	½	60B8-475	BTS-4.7Meg	AF Amp. Grid
R6A	500KΩ	½	63A5-4 ♦	BTS-470K	AF Amp. Plate
B	500KΩ	½		BTS-470K	Output Grid
R7	150Ω	½	60B8-151	BTS-150	Output Cathode
R8	1000Ω	1	60B28-2	BTA-1000	Filter
R9	33Ω	1	60B28-3		Surge Limiter

♦ Items R6A, R6B, C7A, C7B, and C7C are combined into one unit.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		ADMIRAL PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	2.7KΩ	3.1Ω	200Ω	.6Ω		A-3332	A-3025	R0-2 ①	① Drill one new mounting hole.

SPEAKER

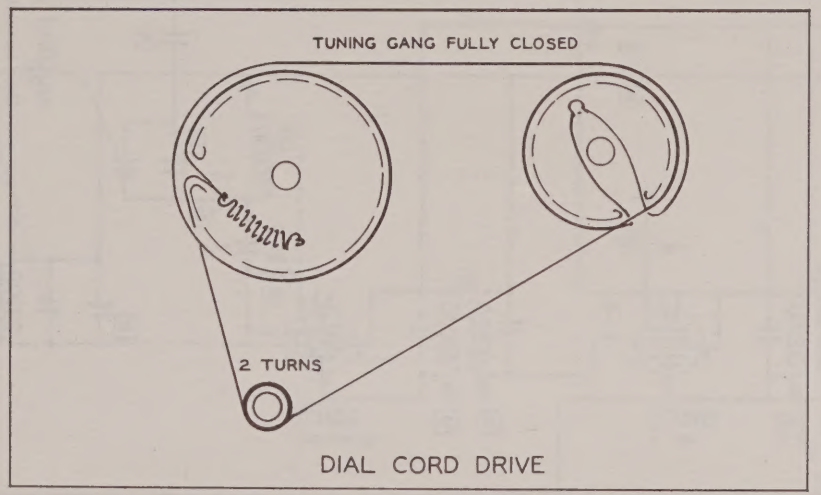
ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			ADMIRAL PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	V. C. IMP.		ST113		
SP1	PM	3.1Ω	78B65-1 ②	Model P4-X	4J4	② Includes output transformer
	CONE DIA.	V. C. DIA.				
SP2	4"	9/16"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	ADMIRAL PART No.	MEISSNER PART No.	
L1	Loop Ant.	.2Ω		69C143		
L2	Osc. Coil	6.8Ω		69A52-4		Tap 6.2Ω
L3	1st. IF Coil	20Ω	20Ω	72B28-7		
L4	2nd. IF Coil	20Ω	20Ω	72B28-7		

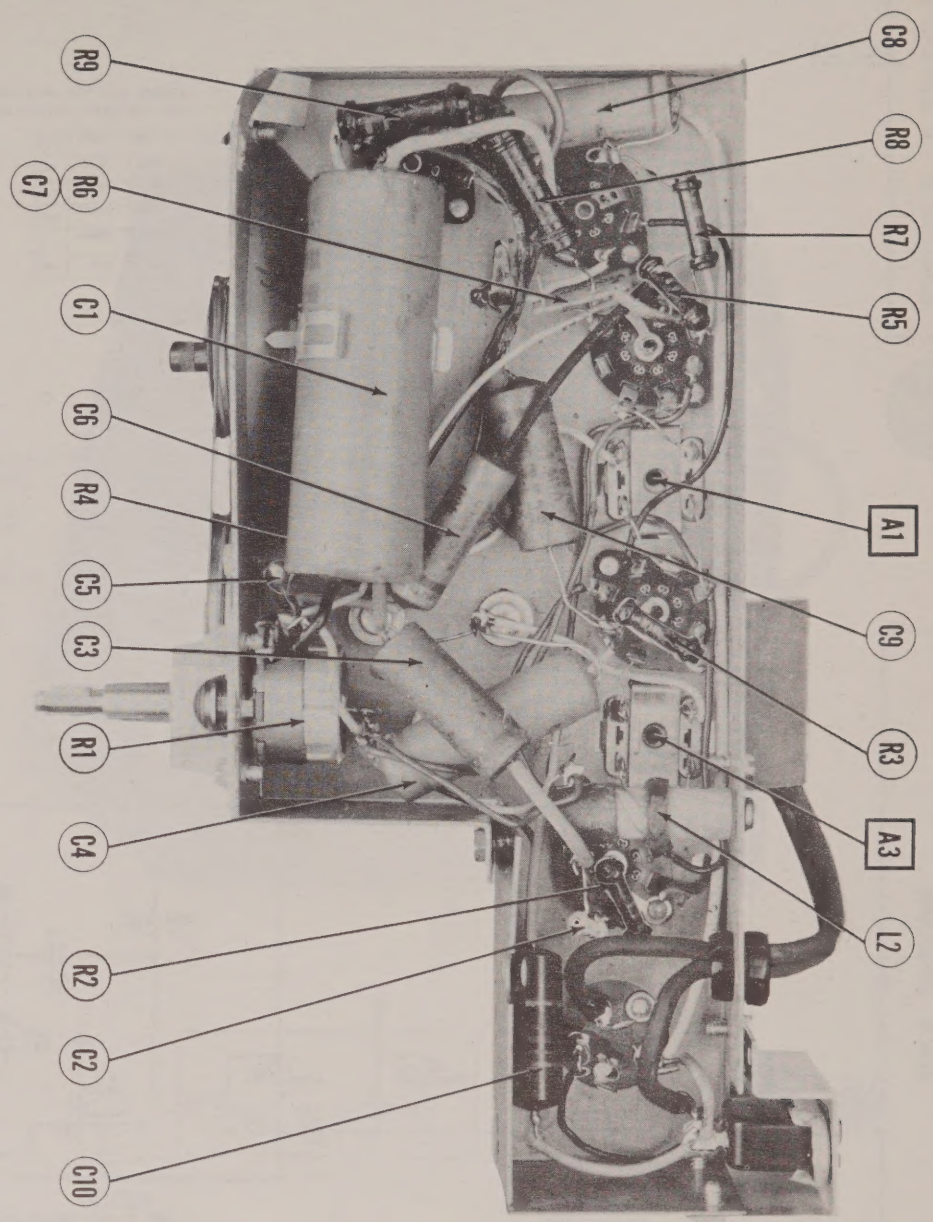
MISCELLANEOUS

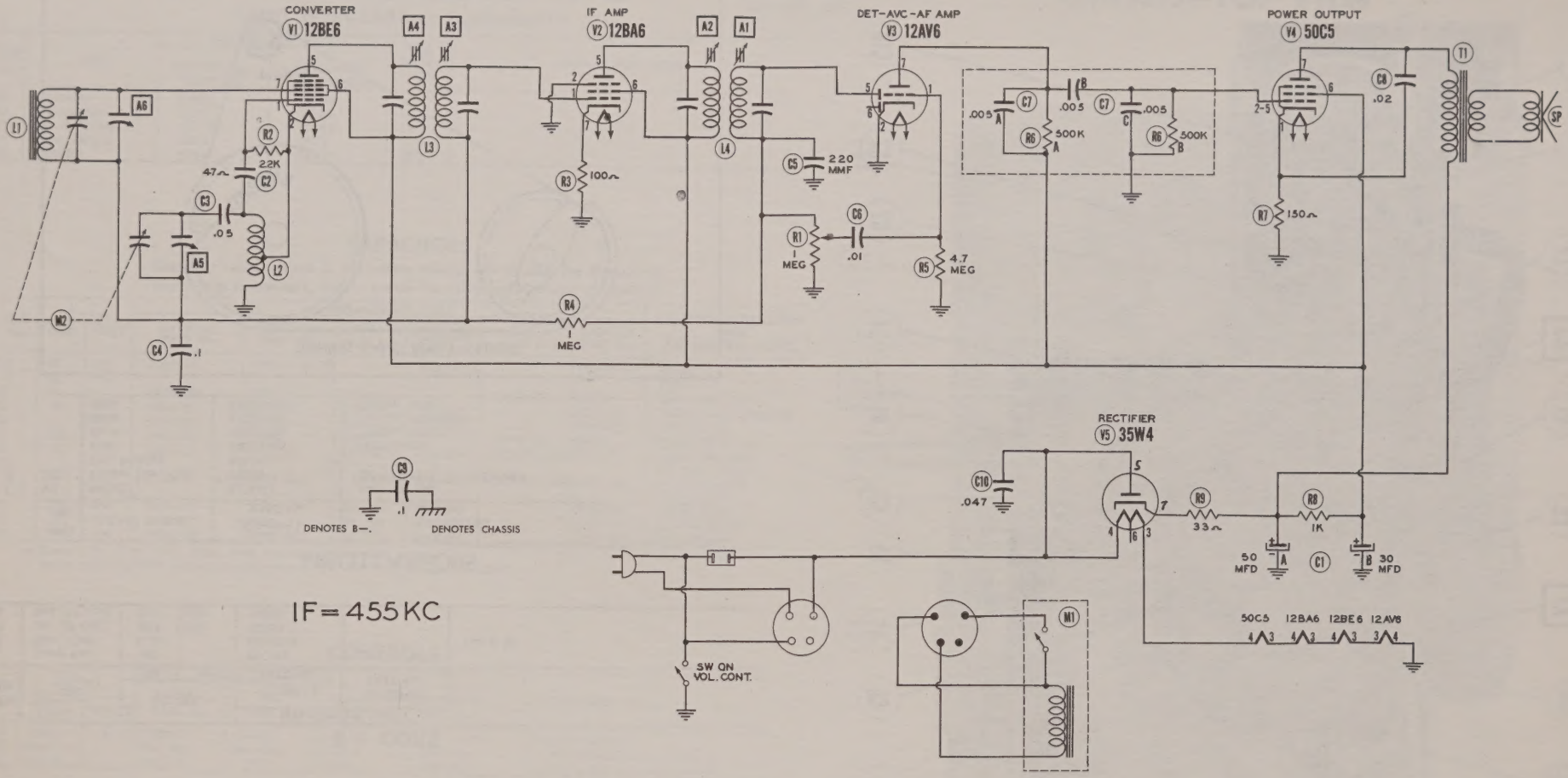
ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
M1	Switch	91C4-14	Auto-On-Off
M2	2 Gang Var. Cap.	68B39	(24-326MMF, 17-252MMF)
	Dial Pointer	25A46-1	
	Knob	33D55-25	Off-Volume
	Knob	33D55-24	Tuning, Ebony
	Knob	33D55-23	Tuning, Manogany
	Knob	33D53-26	Tuning, Ivory



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





IF = 455 KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	8-4.5VDC	0V	12VAC	24VAC	95VDC	95VDC	-3.3VDC
V 2	12BA6	-.1VDC	0V	24VAC	36VAC	95VDC	95VDC	1.1VDC
V 3	12AV6	-.4VDC	0V	12VAC	0V	-.3VDC	-.3VDC	50VDC
V 4	50C5	6.2VDC	0V	36VAC	85VAC	0V	95VDC	110VDC
V 5	35W4	0V	115VDC	85VAC	117VAC	117VAC	105VAC	115VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	.3Ω	12Ω	24Ω	†1KΩ	†1KΩ	2Meg.
V 2	12BA6	2Meg.	0Ω	24Ω	35Ω	†1KΩ	†1KΩ	100Ω
V 3	12AV6	4.7Meg.	0Ω	12Ω	0Ω	1Meg.	Inf.	†500KΩ
V 4	50C5	150Ω	500KΩ	35Ω	85Ω	500KΩ	†1KΩ	†233
V 5	35W4	Inf.	100KΩ	85Ω	120Ω	120Ω	100Ω	100KΩ

† MEASURED FROM PIN 7 OF V5

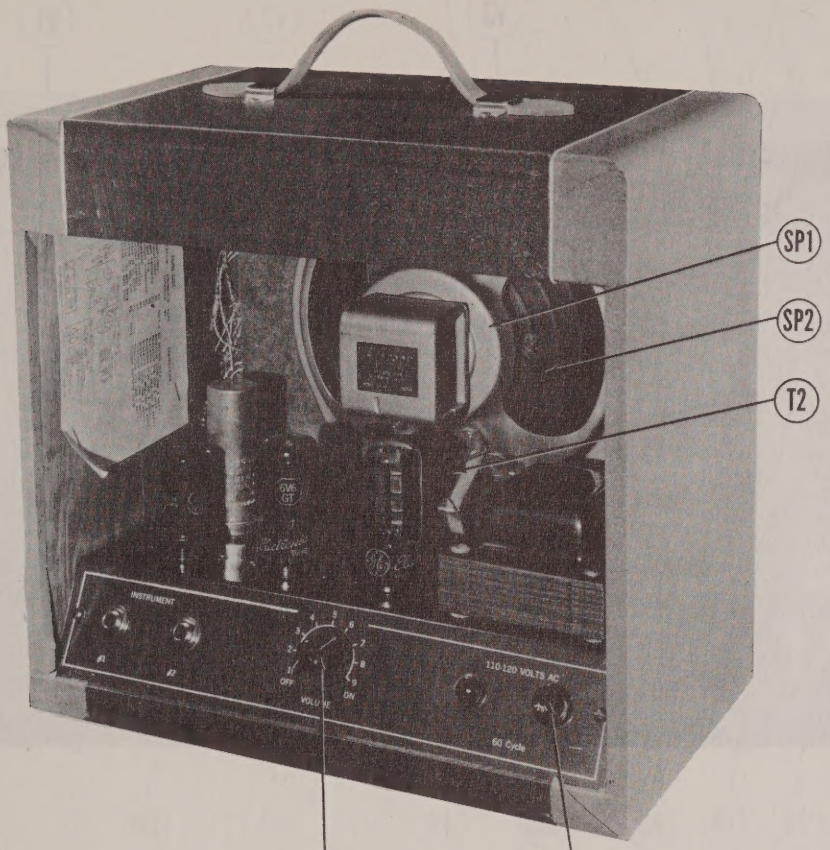
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1951

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

AIRCASTLE
MODEL 79A



AIRCASTLE
MODEL 79A

TRADE NAME	Aircastle, Model 79A
SUPPLIER	Spiegel, Inc. 1061 W. 35 St., Chicago, Illinois
TYPE SET	AC Operated Musical Instrument Amplifier
TUBES (THREE)	Types 6SJ7 AF Amp., 6V6GT Power Output, 5Y3GT Rectifier
POWER SUPPLY	110-125 Volts AC RATING .45 Amp. @ 117 Volts AC

HOWARD W. SAMS & CO., INC. • Indianapolis 1, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		AIRCASTLE PART No.	STANDARD REPLACEMENT		
V1	AF Amplifier	6SJ7	6SJ7	8N	
V2	Power Output	6V6GT	6V6GT	7AC	
V3	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	AIRCASTLE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	20	450		AF24J4A		UP2145C		TVL-3735	■ Filter *
B	10	450							▲ Filter
C	20	25							Output Cathode
C2	50	25		PRS25/50		BR-502A		TVA-1206	AF Amp. Cathode †
C3	.05	600	1105	P688-05	DF-503	PTE6S5		6TM-S5	AF Amp. Screen
C4	.05	600	1105	P688-05	DF-503	PTE6S5		6TM-S5	Audio Coupling
C5	.01	400	1108	P488-01	D6-103	PTE4S1	GP2-333-103		Line Filter

* Some models use 20-20MFD @ 450VDC Mfgrs. Part # 1109 and 25MFD @ 25VDC Mfgrs. Part # 1100 in this application.
† Some models use 25MFD @ 25VDC in this application. Mfgrs. Part # 1100.

CONTROLS

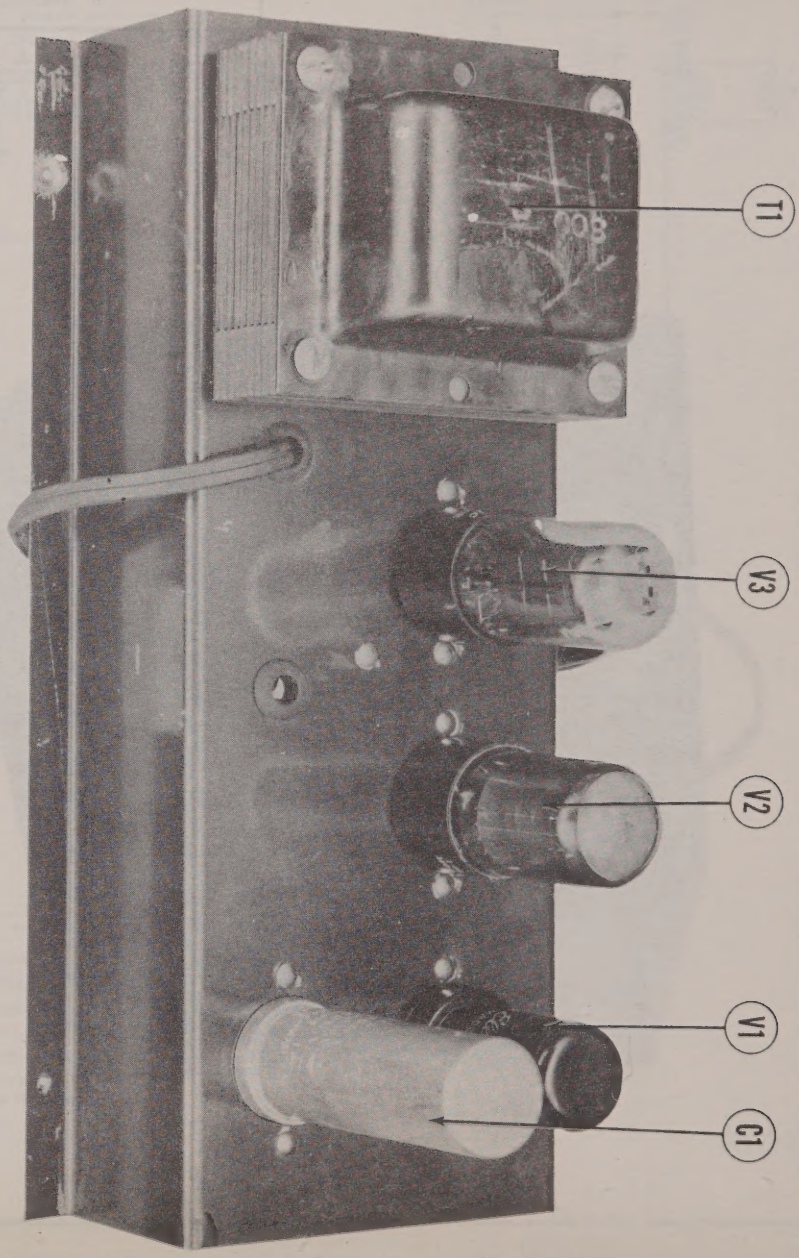
ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	AIRCASTLE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	500KΩ	½	8001	Q13-133	AM-60-Z	B-60-S	Volume Control
B	Shaft		Not req.	Not req.	FS-3	Not req.	Attach to R1A Per Instructions
C	Switch		Not req.	76-1	SW-A	Not req.	Attach to R1A Per Instructions

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	AIRCASTLE PART No.	IRC PART No.	
R2	100KΩ	½		BTS-100K	Input No. 1 Shunt
R3	22KΩ	½		BTS-22K	Series Input No. 1
R4	100KΩ	½		BTS-100K	Input No. 2 Shunt
R5	22KΩ	½		BTS-22K	Series Input No. 2
R6	1.2Meg	½		BTS-1.2Meg	AF Amp. Grid
R7	1500Ω	½		BTS-1500	AF Amp. Cathode
R8	1.5Meg	½		BTS-1.5Meg	AF Amp. Screen - See Note 1
R9	250KΩ	½		BTS-270K	AF Amp. Plate - See Note 2
R10	250KΩ	½		BTS-270K	Output Grid - See Note 2
R11	500Ω	4			Output Cathode - Wire Wound - See Note 3
R12	10KΩ	½		BTS-10K	Filter
R13	250Ω	5		1 3/4A-250	Filter - Wire Wound - See Note 3

Note 1. Some models use 2.2Meg resistor in this application.
Note 2. Some models use 500KΩ resistor in this application.
Note 3. Some models use 200Ω resistor in this application.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	AIRCASTLE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC	660VCT	5VAC	6.3VAC	303	PM8410 ②	P-2953	

② Add series resistor to reduce plate voltage.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIRCASTLE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	4.5KΩ	3.5Ω	270Ω	.75Ω	302	A-3849	A-3019	R0-9 ①	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	V. C. IMP.	AIRCASTLE PART No.	JENSEN PART No.	QUAM PART No.	
SP1	PM	3.5Ω	1601	ST115 Mod. P8-V	8A31	
	CONE DIA.	V. C. DIA.				
SP2	7 3/8"	9/16"				

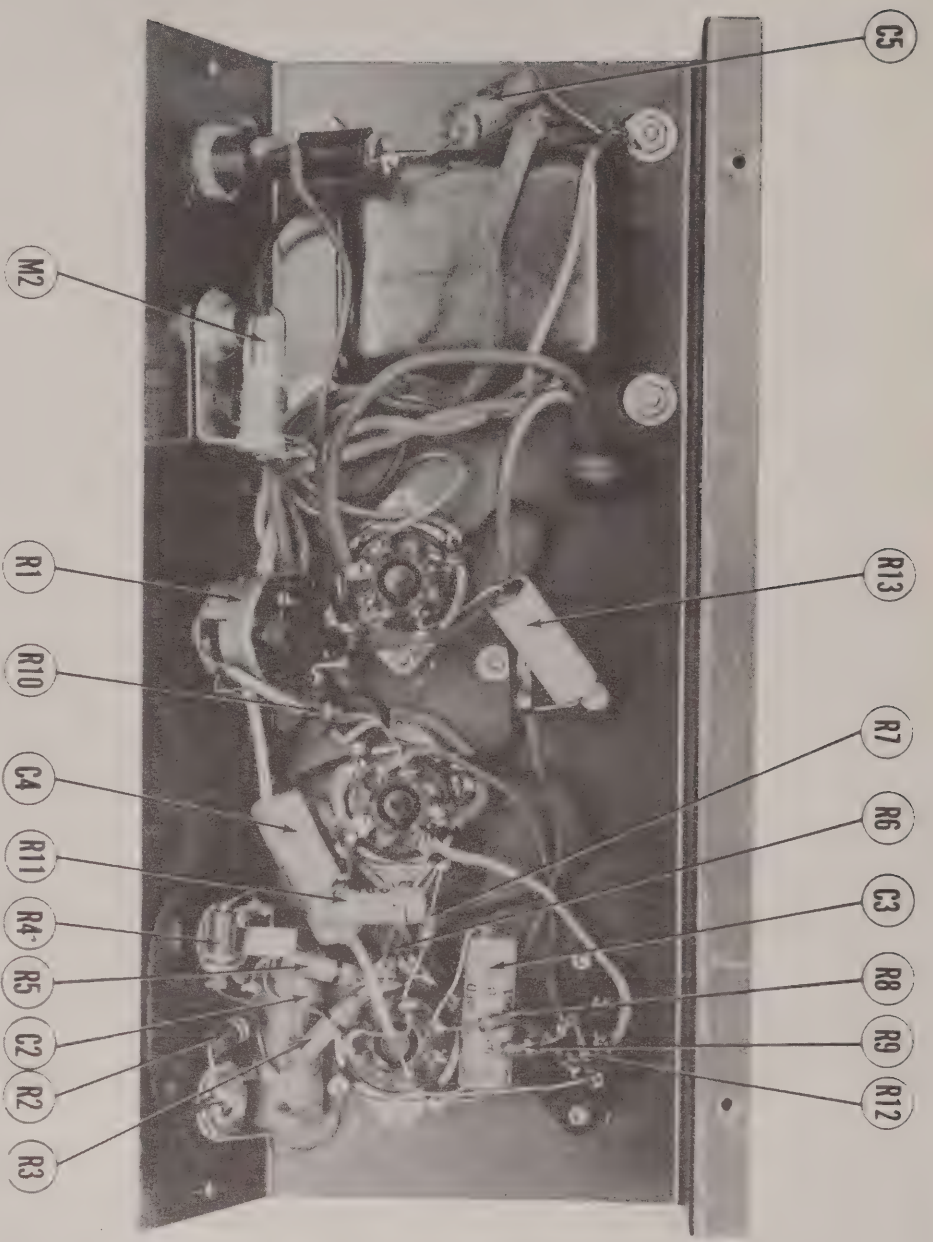
FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			AIRCASTLE PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M1	3AG	3Amp		1611 ②	312003	342001	② Includes Fuse

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					AIRCASTLE PART No.		
M2	Bayonet	6-8	.15	Brown			Type # 40

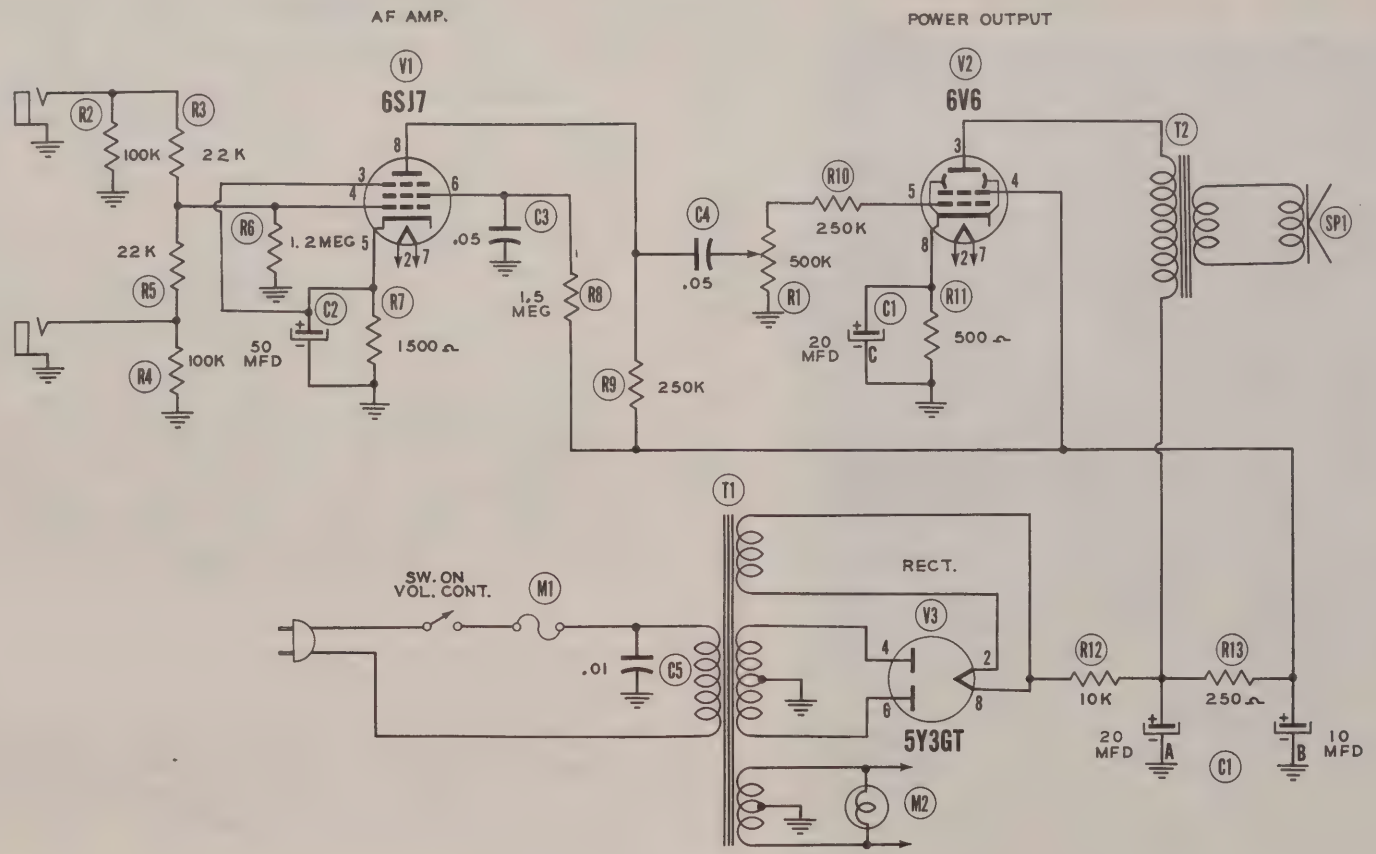
CHASSIS—BOTTOM VIEW



SET 137 FOLDER 3

AIRCASTLE MODEL 79A

AIRCASTLE MODEL 79A



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SJ7	0V	3.2VAC	1.4VDC	0V	1.4VDC	30VDC	3.4VAC	127VDC
V 2	6V6GT	0V	3.2VAC	350VDC	330VDC	0V	0V	3.4VAC	22.5VDC
V 3	5Y3GT	0V	370VDC	83VAC	330VAC	0V	330VAC	0V	370VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SJ7	Inf.	.1Ω	1.5KΩ	60KΩ	1.5KΩ	†1.5Meg	.1Ω	†300KΩ
V 2	6V6GT	Inf.	.1Ω	†540Ω	†10KΩ	850KΩ	Inf.	.1Ω	500Ω
V 3	5Y3GT	Inf.	60KΩ	Inf.	130Ω	Inf.	120Ω	Inf.	60KΩ

† MEASURED FROM PIN 8 OF V3

THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1951

137-3

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

EMERSON MODELS 661B, 667B, 668B, 674B, 677B, 678B, 684B, 685B

IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . *unless* it has been purchased as part of a *complete* volume of PHOTOFACTS assembled in a DeLuxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

MODEL 668B

EMERSON MODELS 661B, 667B, 668B, 674B, 677B, 678B, 684B, 685B

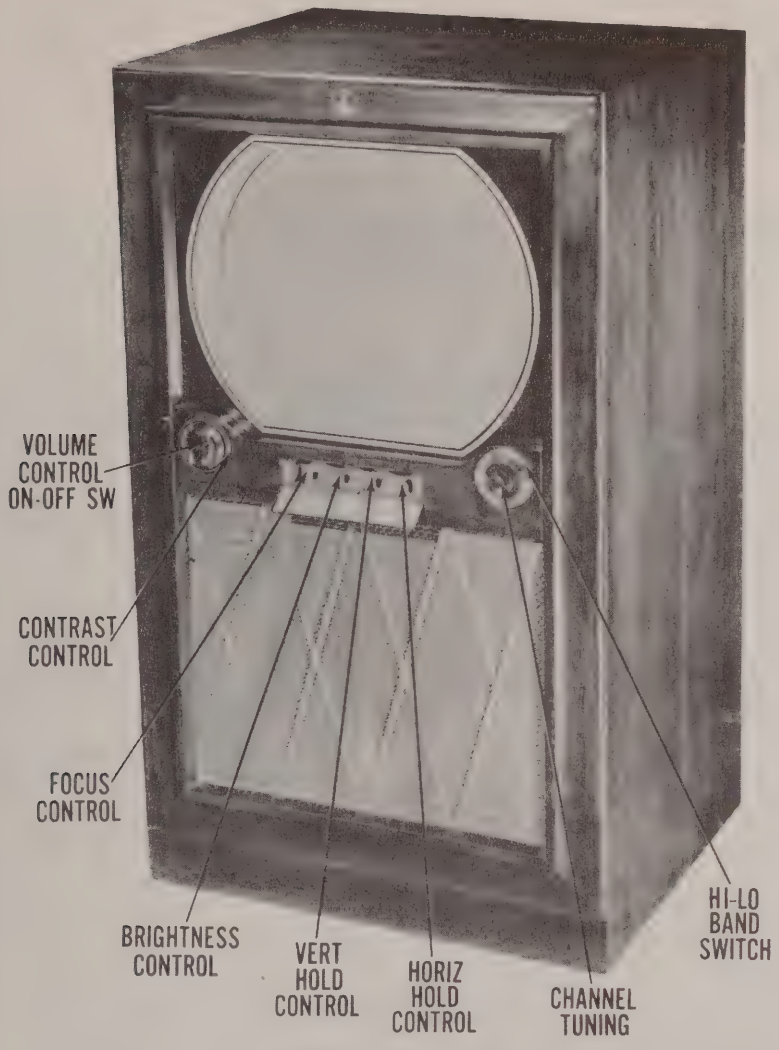
HOWARD W. SAMS & CO., INC. • Indianapolis, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

DATE 7-51 SET 137 FOLDER 4

PHOTOFACT* Folder
*TRADE MARK

EMERSON MODELS 661B, 667B, 668B, 674B, 677B, 678B, 684B, 685B



EMERSON MODEL 668B

TRADE NAME	Emerson, Models 661B, 667B, 668B, 674B, 677B, 678B, 684B, 685B (Ch. 120134B, G, H)
MANUFACTURER	Emerson Radio & Phono Corp., 111 Eighth Ave., New York, N. Y.
TYPE SET	Television Receiver
TUBES	Twenty-three
POWER SUPPLY	110-120 Volts AC-60Cycle
RATING	1.82 Amp. @ 117 Volts AC
TUNING RANGE—CHANNELS	2 thru 13

INDEX

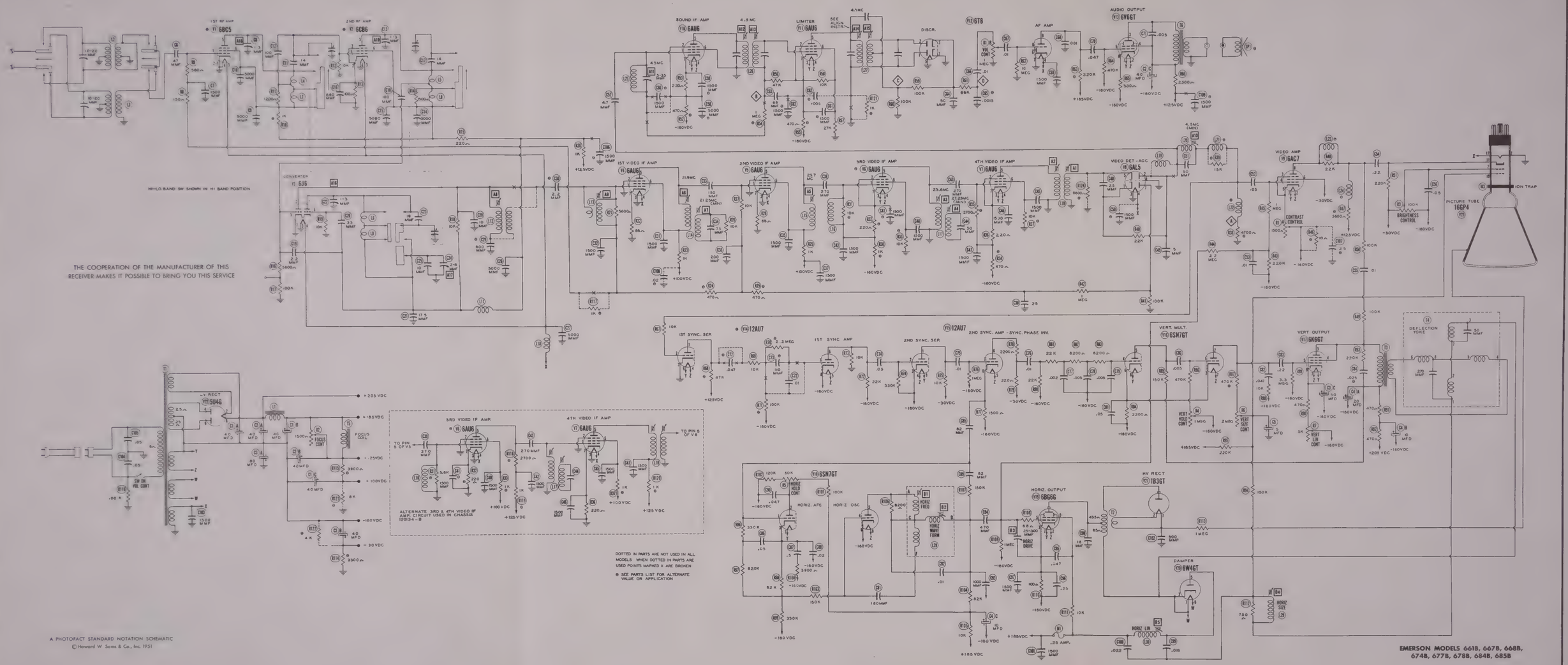
Alignment Instructions 6, 7
Drive Cord Stringing 10
Disassembly Instructions 10
Horizontal Sweep Circuit Adjustments 10
Parts List And Description ..... 11 thru 14
Photographs
Cabinet - Rear View 10
Capacitor And Alignment Identification 4, 9
Photographs (Continued)
Chassis - Top View 3
RF Tuner 14
Resistor And Inductor Identification 15, 16
Schematic 2
Tube Placement Charts 5
Voltage And Resistance Measurements 8

HOWARD W. SAMS & CO., INC. • Indianapolis 1, Indiana

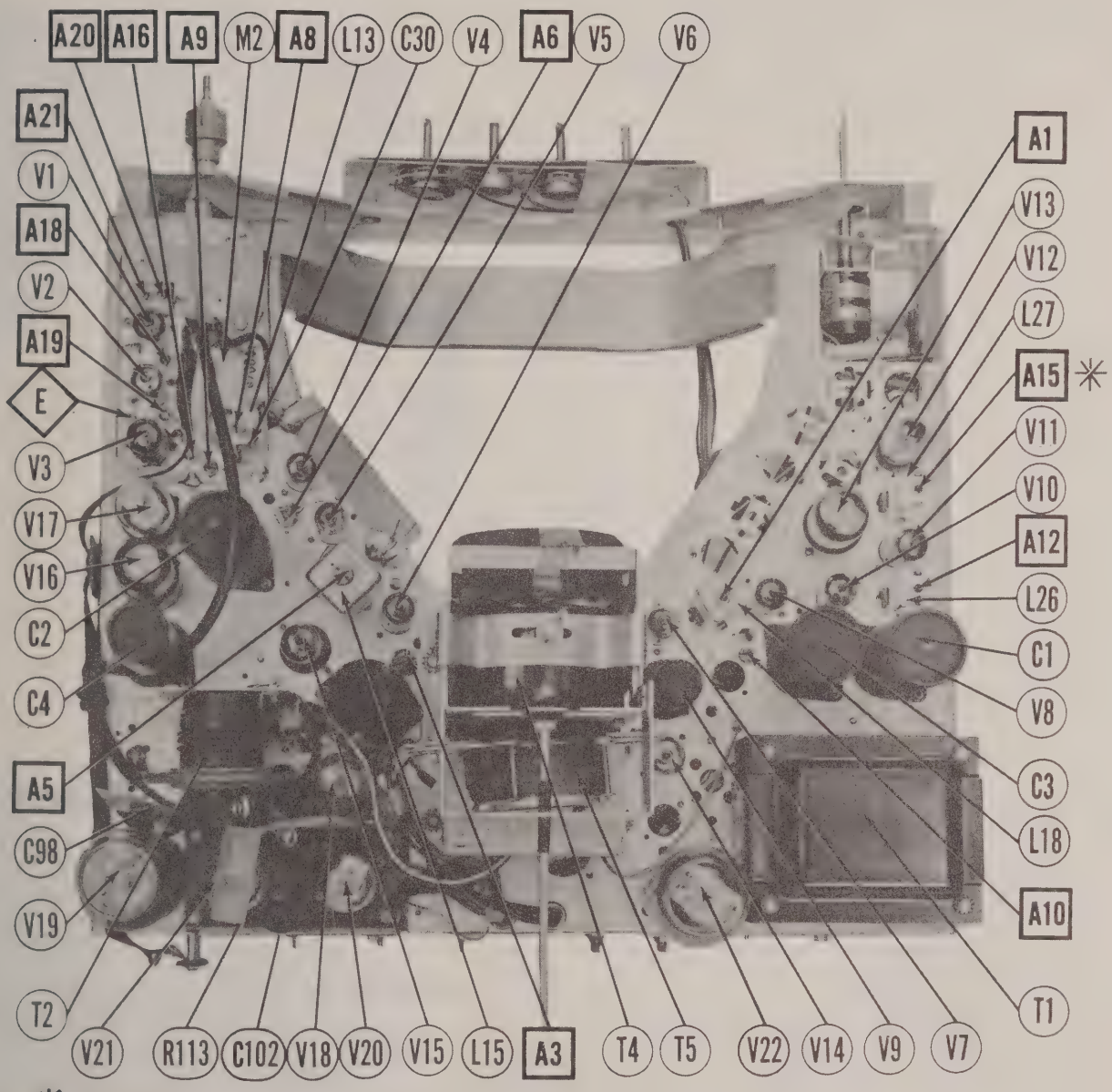
"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

DATE 7-51 SET 137 FOLDER 4

EMERSON MODELS 661B, 667B, 668B, 674B, 677B, 678B, 684B, 685B

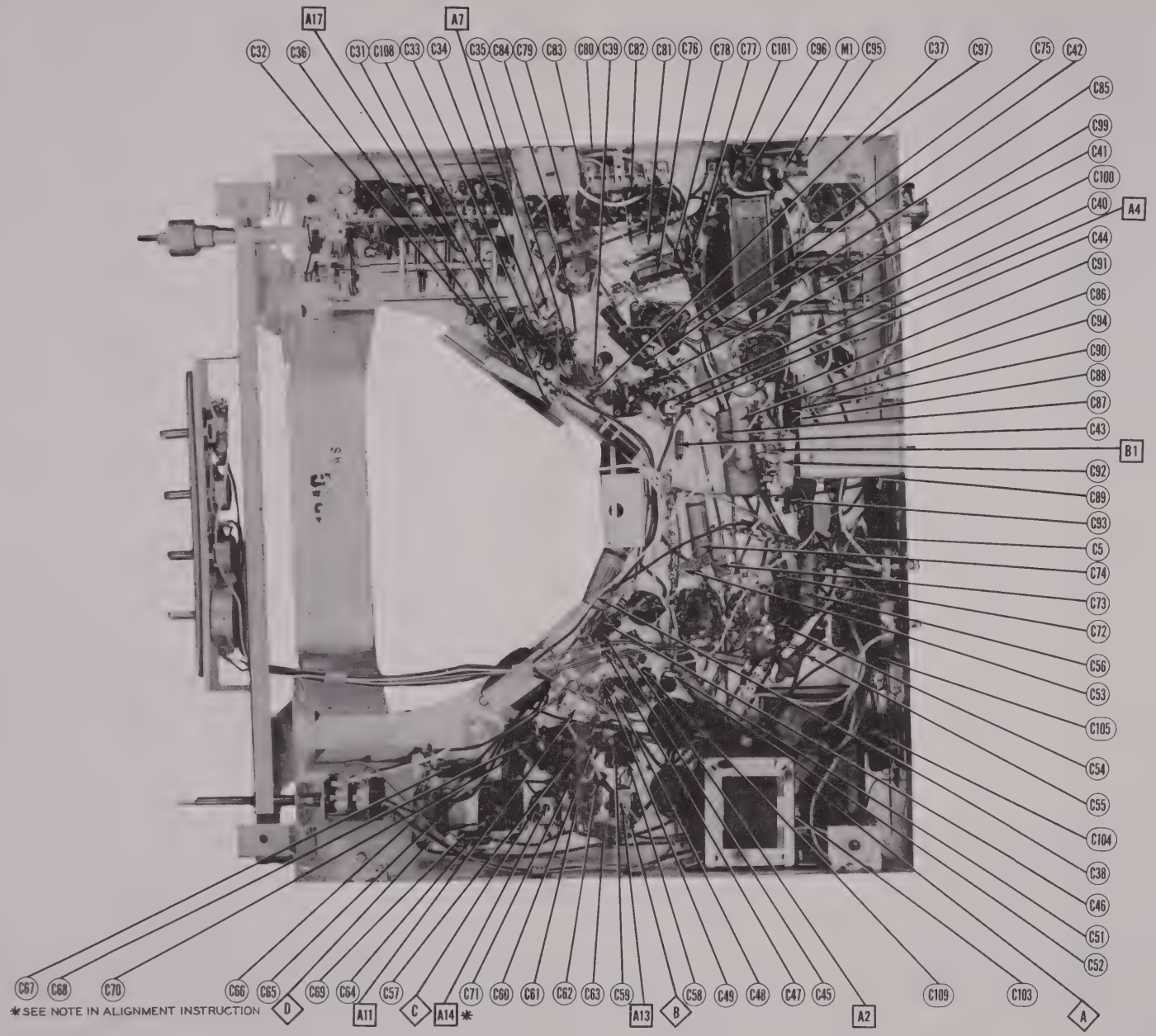


EMERSON MODELS 661B, 667B, 668B, 674B, 677B, 678B, 684B, 685B

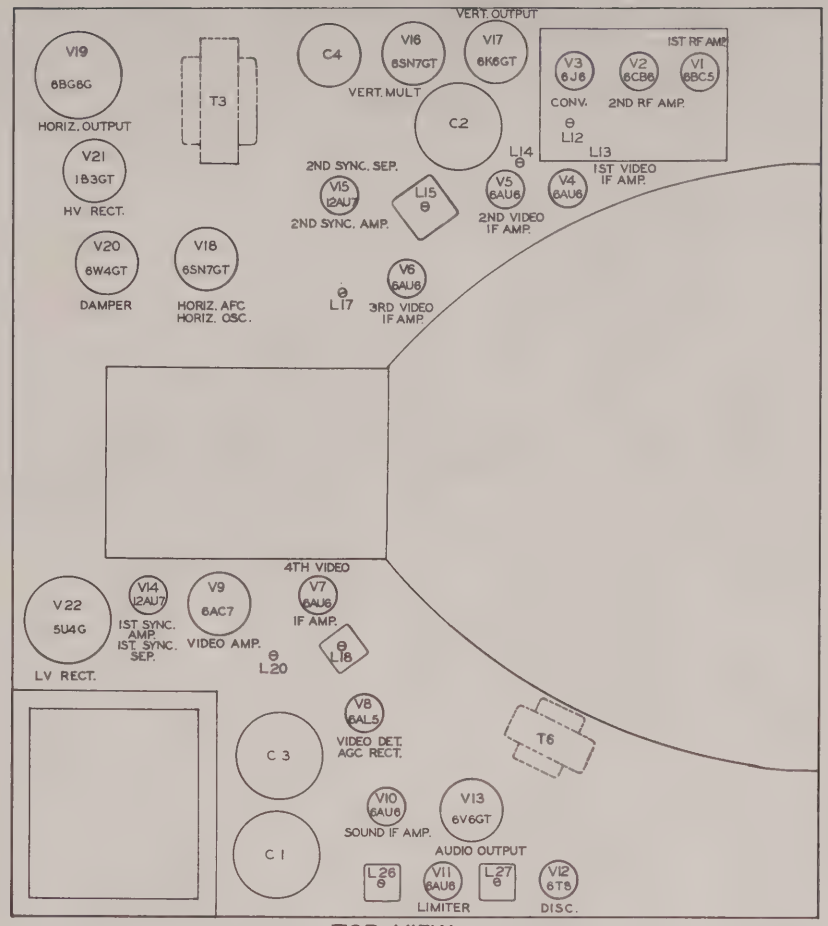


✳ SEE NOTE IN ALIGNMENT INSTRUCTIONS

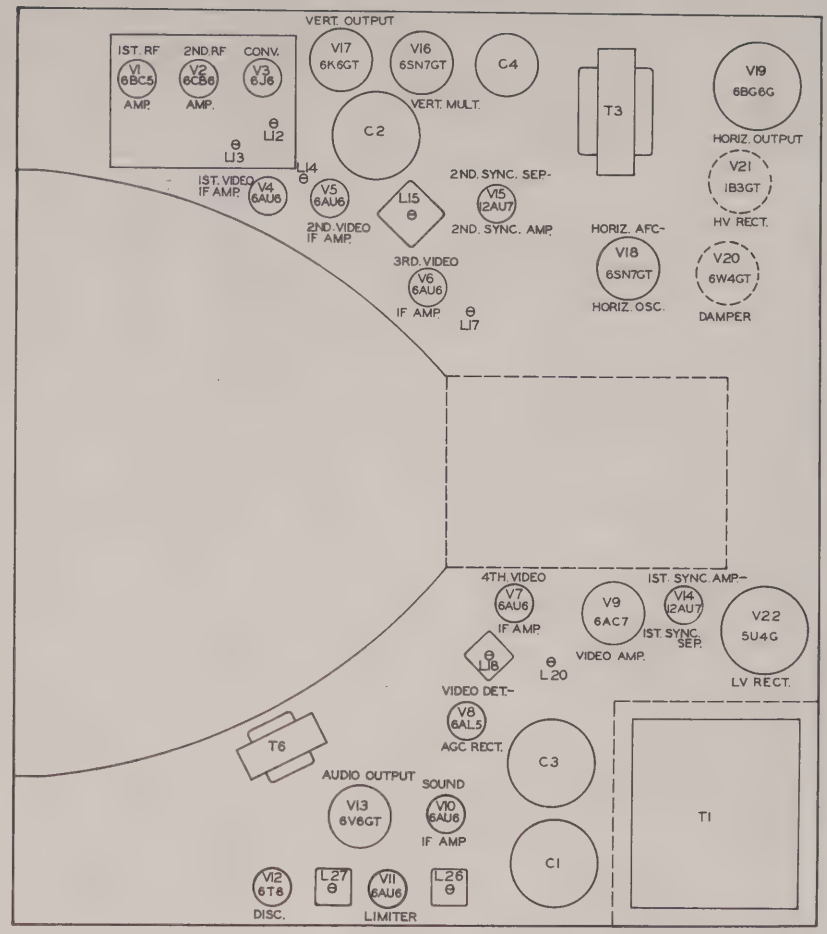
CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



TOP VIEW



BOTTOM VIEW

TUBE PLACEMENT CHART

EMERSON MODELS 661B, 667B, 668B, 674B, 677B, 678B, 684B, 685B

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard may be eliminated by removing the horizontal oscillator tube, (V18), from its socket.

VIDEO IF ALIGNMENT

Remove the converter tube, (V3), and replace it with a 6J6 which has Pin 1 removed, this will disable the local oscillator and prevent the possibility of erroneous indications.

Connect the negative lead of a 3 volt battery to the junction of R42 and C38.

Connect a 10KΩ isolating resistor in series with the vertical lead of the oscilloscope.

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.001MFD	High side to Pin 1 (grid) of 6AU6, (V7). Low side to chassis.	24MC (10MC SWP)	21.9MC 25.75MC	Any	Vert. amp. to Point (A). Low side to chassis.	A1, A2	Adjust for response curve similar to figure 1.
2.	"	High side to Pin 1 (grid) of 6AU6, (V4). Low side to chassis.	Not used	23.6MC	"	USE VTVM DC probe to Point (A) Common to chassis.	A3	Adjust for maximum deflection.
3.	"	"	"	27.25MC	"	"	A4	Adjust for MINIMUM deflection.
4.	"	"	"	25.7MC	"	"	A5	Adjust for maximum deflection.
5.	"	"	"	21.9MC	"	"	A6	"
6.	"	"	"	21.25MC	"	"	A7	Adjust for MINIMUM deflection.
7.	"	"	24MC	21.9MC	"	Vert. amp. thru detector circuit (figure 2) to Pin 5 (plate) of 6AU6, (V4). Low side to chassis.	A8, A9	Adjust for response curve similar to figure 1.
8.	Direct	High side to an ungrounded tube shield floating over dummy converter tube, (V3). Low side to chassis.	"	21.25MC 21.9MC 25.75MC	"	Vert. amp. to Point (A). Low side to chassis.		Check for response curve similar to figure 3. If necessary retouch A1, A2, A3, A5 and A6 for proper response.

4.5MC TRAP ADJUSTMENT

During this adjustment the common lead of the VTVM is connected to approximately 160 volts with respect to chassis. Avoid touching or grounding the VTVM case.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
9.	.001MFD	High side to Pin 5 (cathode) of 6AL5, (V8). Low side to chassis.	4.5MC (400 ∿ Mod.)	Any	DC probe thru detector (figure 2) to Pin 11 of picture tube.	A10	Adjust for MINIMUM deflection.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

During sound IF alignment the common lead of the VTVM is connected to approximately 160 volts with respect to chassis. Avoid touching or grounding the VTVM case

Two ratio detector transformers are used in these receivers. On transformer # 708031 (Sickles), the secondary is on the bottom. On transformer #708031B (Automatic) the secondary is on top.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
10.	.001MFD	High side to Pin 5 (cathode) of 6AL5, (V8). Low side to chassis.	4.5MC (Unmod.)	Any	DC probe to Point (B). Common to Pin 7 of V13.	A11, A12, A13	Adjust for maximum deflection.
11.	"	"	"	"	DC probe to Point (C). Common to Pin 7 of V13.	A14	"
12.	"	"	"	"	DC probe to Point (D). Common to Pin 7 of V13	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection. See notes under VTVM Sound Alignment.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	.001MFD	High side to Pin 5 (cathode) of 6AL5, (V8). Low side to chassis.	4.5MC (450KC SWP)	4.5MC	Any	Vert. amp. thru 10KΩ to Point (B). Low side to chassis.	A11, A12, A13	Adjust for maximum amplitude and symmetry as per figure 4.
11.	"	"	"	"	"	Vert. amp. to Point (D). Low side to chassis.	A15, A14	Adjust A15 so 4.5MC occurs at center of cross-over lines as per figure 5. Adjust A14 for maximum amplitude crossover lines. Continue with step 13.

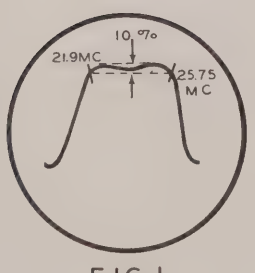


FIG. 1

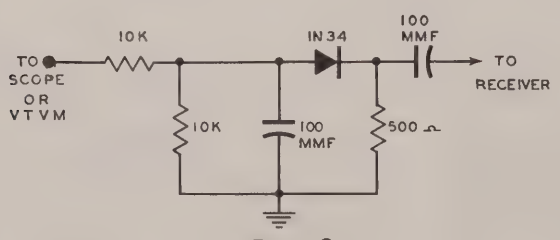


FIG. 2

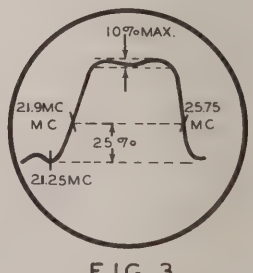


FIG. 3

ALIGNMENT INSTRUCTIONS (CONT.)

TUNER ALIGNMENT

Remove the dummy converter and replace the original 6J6 in its socket.
The use of two marker generators is recommended to align this tuner, (two generators are not absolutely necessary as will be explained later).
Marker generator #1 is connected thru a 2 or 3 MMF capacitor across the sweep generator at the antenna terminals.
If the sweep generator has a built in marker generator, it will be used for marker generator No. 1. Marker generator No. 2 is connected to an ungrounded tube shield slipped over the converter tube, V3. Marker generator No. 2 is used to supply a reference marker at the video IF frequency, (25.75MC). If, at the beginning of each step, 25.75MC is fed into the antenna terminals by means of marker generator No.1, and the position of the marker on the response curve carefully noted for future reference, marker generator No. 2 will not be needed.
The reference marker will be indicated in the table by an asterisk (*).
Connect a short across the trap winding of L14.
Remove the second video IF amp. to prevent IF feedback.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

HIGH BAND OSCILLATOR ALIGNMENT

Turn the band switch to "high band" (counter-clockwise).

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
13.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC SWP)	212.75MC *25.75MC	Tuning gang fully open.	Vert. amp. thru detector (figure 2) to Pin 1 (grid) of V4. Low side to chassis.	A16	Adjust A16 until markers coincide on response curve.
14.	"	"	177MC (10MC SWP)	172.75MC *25.75MC	Tuning gang fully closed.	"	L6	Remove tuner bottom cover. With a non-metallic tool adjust turn spacing of L6 until markers coincide on response curve. Replace bottom cover. If markers separate make compensating adjustment of L6 so markers coincide with bottom cover in place. Repeat steps 13 and 14 until high band oscillator covers the proper range.

LOW BAND OSCILLATOR ALIGNMENT

Turn the band switch to "low band" (clockwise).
Remove the tuner bottom cover.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
15.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	85MC (10MC SWP)	84.75MC *25.75MC	Tuning gang fully open	Vert. amp. thru detector (figure 2) to Pin 1 (grid) of V4. Low side to chassis.	L9	With a non-metallic tool adjust L9 turn spacing until markers coincide on response curve.
16.	"	"	57MC (10MC SWP)	54.25MC *25.75MC	Tuning gang fully closed.	"	A17	Adjust A17 until markes coincide on response curve.

HIGH BAND RF ALIGNMENT

For step 17 tune to channel 13 by feeding the channel 13 video carrier frequency, (211.25MC), into the antenna and turn the tuning control until the marker coincides with the 25.75MC reference marker, on the response curve obtained at the tuner output as during oscillator alignment. Leave the tuning control at this position during step 17.
For step 18 tune to channel 7 in a similar manner using the channel 7 video marker (175.25MC). Leave tuning at this position during step 18.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
17.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC SWP)	211.25MC 215.75MC	13 (See note above)	Vert. amp. thru 10KΩ to Point (E). Low side to chassis.	A18, A19	Adjust A18 for maximum amplitude in the vicinity of the video marker and A19 for maximum amplitude in the vicinity of the sound marker.
18.	"	"	177MC (10MC SWP)	175.25MC 179.75MC	7	"	L4, L5	With a non-metallic tool adjust turn spacing of L4 for maximum amplitude in the vicinity of the video marker and L5 for maximum amplitude in the vicinity of the sound marker. Repeat steps 17 and 18 until both channels 7 and 13 fall within the limits of figure 6.

LOW BAND RF ALIGNMENT

For step 19 tune to channel 6 by feeding the channel 6 video carrier frequency, (83.25MC) into the antenna and adjust the tuning control until the marker coincides with the 25.75MC reference marker on the response curve at the tuner output.
Leave the tuning at this position during step 19.
For step 20 tune to channel 2 by coincidence of the channel 2 video marker, (55.25MC), and the 25.75MC reference marker.
Leave tuning at this position during step 20.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
19.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	85MC (10MC SWP)	83.25MC 87.75MC	6	Vert. amp. thru 10KΩ to Point (E). Low side to chassis.	L7, L8	With a non-metallic tool adjust L7 turn spacing for maximum amplitude in the vicinity of the video marker and L8 for maximum amplitude in the vicinity of the sound marker.
20.	"	"	57MC (10MC SWP)	55.25MC 59.75MC	2	"		Check the channel 2 response. If necessary retouch L7 and L8 for best compromise which will give a response on both channels 6 and 2 within the limits shown in figure 6. Recheck high and low band channels for proper oscillator coverage and acceptable response.

HIGH BAND ANTENNA TRIMMER ADJUSTMENT

Tune to channel 13 as outlined under high band RF alignment.
Connect the scope through 10KΩ Point E.
Turn the high band antenna trimmer, (A20) several turns counter-clockwise.
Then turn A19 clockwise while observing the response. It will be noted that the response amplitude will increase to a certain point, and then the response will begin to narrow. Back off the trimmer, (counter-clockwise), to the point of maximum bandwidth without reduction of amplitude.

LOW BAND ANTENNA TRIMMER ADJUSTMENT

The low band antenna trimmer, (A21), is adjusted the same as the high band trimmer, except that the tuner is tuned to channel 6 and A21 adjusted while observing the channel 6 response.

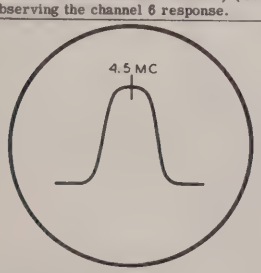


FIG. 4

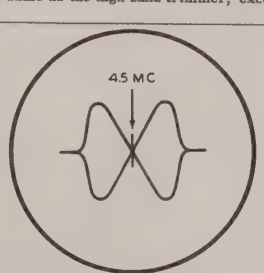


FIG. 5

FIG. 6

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BC5	-.5VDC	0V	6.3VAC	0V	80VDC	80VDC	0V		
V 2	6CB6	0V	1VDC	6.3VAC	0V	85VDC	85VDC	1VDC		
V 3	6J6	■100VDC ◓80VDC	■65VDC ◓60VDC	0V	6.3VAC	■-2.4VDC ◓-2VDC	§■-6.6VDC §◓-3.2VDC	0V		
V 4	6AU6	-.6VDC	0V	0V	6.3VAC	90VDC	90VDC	.2VDC		
V 5	6AU6	-.6VDC	0V	0V	6.3VAC	90VDC	90VDC	.3VDC		
V 6	6AU6	▲6.5VDC	▲8.3VDC	▲0V	▲6.3VAC	▲160VDC	▲140VDC	▲8.3VDC		
V 7	6AU6	▲3VDC	▲4.8VDC	▲0V	▲6.3VAC	▲160VDC	▲140VDC	▲4.8VDC		
V 8	6AL5	-.1VDC	-.2VDC	0V	6.3VAC	0V	0V	-.6VDC		
V 9	6AC7	▲160VDC	▲6.3VAC	▲2.2VDC	▲-.1VDC	▲2.2VDC	▲125VDC	▲0V	▲280VDC	
V 10	6AU6	▲.3VDC	▲3.1VDC	▲0Ω	▲6.3VAC	▲160VDC	▲160VDC	▲4.5VDC		
V 11	6AU6	▲2.1VDC	▲3VDC	▲0Ω	▲6.3VAC	▲160VDC	▲41VDC	▲3VDC		
V 12	6T8	-.5VDC	-.5VDC	0V	6.3VAC	0V	-1VDC	0V	-.2VDC	60VDC
V 13	6V6GT	▲0V	▲6.3VAC	▲190VDC	▲200VDC	▲0V	▲0V	▲0V	▲11.2VDC	
V 14	12AU7	▲185VDC	▲160VDC	▲160VDC	▲6.3VAC	▲6.3VAC	▲31VDC	▲-.8VDC	▲0V	▲0V
V 15	12AU7	▲70VDC	▲-.7VDC	▲0V	▲6.3VAC	▲6.3VAC	▲120VDC	▲-1.2VDC	▲3.2VDC	▲0V
V 16	6SN7GT	▲-26VDC ▲-19VDC	▲115VDC	▲4VDC	▲0V	▲90VDC	▲4VDC	■6.3VAC	▲0V	
V 17	6K6GT	▲0V	▲6.3VAC	▲340VDC	▲340VDC	▲-15VDC	▲320VDC	▲0V	▲52VDC ▲12VDC	
V 18	6SN7GT	▲-2.7VDC	▲175VDC ▲125VDC	▲-16VDC	▲-70VDC	▲185VDC	▲0V	▲0V	▲6.3VAC	
V 19	6BG6G	▲0V	▲6.3VAC	▲10.4VDC	▲-6.4VDC	▲-6.4VDC	▲-.4VDC	▲0V	▲275VDC	TOP CAP *
V 20	6W4GT	0V	0V	380VDC	0V	155VDC	0V	380VDC	380VDC	
V 21	1B3GT	* DO NOT MEASURE								
V 22	5U4G	0V	205VDC	0V	▲350VAC	0V	▲350VAC	0V	205VDC	
V 23	16GP4	0V	-160VDC -30VDC	PIN 10 270VDC	PIN 11 -27VDC	PIN 12 6.3VAC				

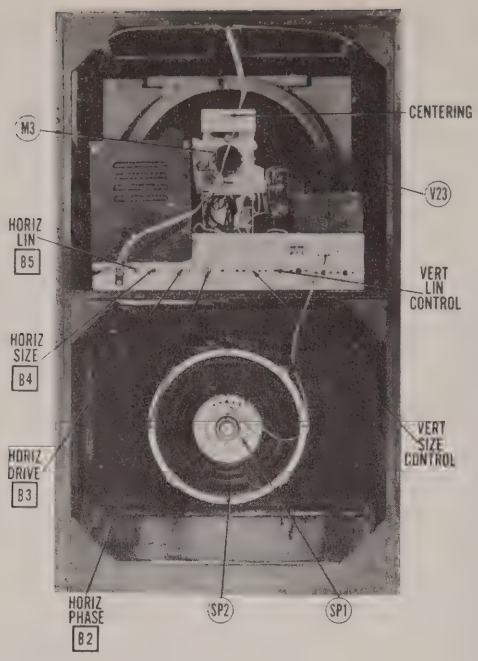
ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED.
▲ MEASURED FROM -160VDC LINE
* DO NOT MEASURE
§ TAKEN WITH VACUUM TUBE VOLTMETER
◓ HIGH BAND MEASUREMENT
■ LOW BAND MEASUREMENT
FOCUS CONTROL FULL COUNTER CLOCKWISE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BC5	1.1Meg	0Ω	.1Ω	0Ω	†3KΩ	†3KΩ	0Ω		
V 2	6CB6	10KΩ	100Ω	.1Ω	0Ω	†2KΩ	†2KΩ	100Ω		
V 3	6J6	†1.8KΩ	†12KΩ	0Ω	.1Ω	100KΩ	10KΩ	0Ω		
V 4	6AU6	1.1Meg	0Ω	0Ω	.1Ω	†5.8KΩ	†5.8KΩ	68Ω		
V 5	6AU6	1.1Meg	0Ω	0Ω	.1Ω	†5.8KΩ	†5.8KΩ	68Ω		
V 6	6AU6	▲1KΩ	▲1.2KΩ	▲0Ω	▲.1Ω	.2Ω	10KΩ	▲1.2KΩ		
V 7	6AU6	▲3.2KΩ	▲700Ω	▲0Ω	▲.1Ω	1.2Ω	10KΩ	▲700Ω		
V 8	6AL5	27KΩ	4.7KΩ	0Ω	.1Ω	1.4Ω	0Ω	100KΩ		
V 9	6AC7	0Ω	▲.1Ω	▲1.5KΩ	▲1.2Meg	▲1.5KΩ	3.3KΩ	▲0Ω	†6.4KΩ	
V 10	6AU6	▲1Meg	▲470Ω	▲0Ω	▲.1Ω	2.3Ω	0Ω	▲800Ω		
V 11	6AU6	▲47KΩ	▲470Ω	▲0Ω	▲.1Ω	1.8Ω	▲8.5KΩ	▲470Ω		
V 12	6T8	100KΩ	100KΩ	200KΩ	.1Ω	0Ω	Inf.	0Ω	10Meg	†220KΩ
V 13	6V6GT	Inf.	▲.1Ω	†3.6KΩ	†3.3KΩ	▲470KΩ	▲0Ω	▲0Ω	▲330Ω	
V 14	12AU7	†47KΩ	15KΩ	0Ω	▲.1Ω	▲.1Ω	▲8KΩ	▲2.3Meg	▲0Ω	▲0Ω
V 15	12AU7	13KΩ	▲330KΩ	▲0Ω	▲.1Ω	▲.1Ω	5.8KΩ	▲1Meg	▲1.5KΩ	▲0Ω
V 16	6SN7GT	▲470KΩ ▲1.5Meg	#700KΩ #2.5Meg	▲2.2KΩ	▲60KΩ	†150KΩ	▲2.2KΩ	▲.1Ω	▲0Ω	
V 17	6K6GT	Inf.	▲0Ω	†1.5KΩ	†1.5KΩ	▲3.3Meg	†220KΩ	▲.1Ω	▲470Ω ▲5.5KΩ	
V 18	6SN7GT	▲1.5Meg	†85KΩ	▲415KΩ	▲480KΩ	†92KΩ	▲0Ω	▲0Ω	▲.1Ω	
V 19	6BG6G	Inf.	▲.1Ω	▲100Ω	▲700KΩ	▲700KΩ	▲240KΩ	▲0Ω	†10KΩ	TOP CAP #85Ω
V 20	6W4GT	Inf.	Inf.	275KΩ	Inf.	†145Ω	Inf.	#0Ω	#.1Ω	
V 21	1B3GT	PINS 1 THRU 8 INFINITE RESISTANCE								TOP CAP #600Ω
V 22	5U4G	Inf.	55KΩ	Inf.	▲25Ω	Inf.	▲25Ω	Inf.	55KΩ	
V 23	16GP4	0Ω	▲0Ω ▲15KΩ	PIN 10 #150KΩ	PIN 11 223KΩ	PIN 12 .1Ω				

ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED.
† MEASURED FROM PIN 8 OF V22
# MEASURED FROM PIN 3 OF V20
▲ MEASURED FROM -160VDC LINE
FOCUS COIL TURNED FULLY COUNTER CLOCKWISE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Connect a short across terminals C and D of L28.
Turn the set on and tune in a TV station, preferably a test pattern.
Turn the horizontal hold control to fully counter-clockwise.
Starting with the horizontal frequency slug, (B1), fully out, adjust clockwise until the picture synchronizes horizontally.
Remove the short from L28 and connect the vertical input lead of an oscilloscope through a 22KΩ resistor to terminal C of L28.
Adjust the horizontal phasing slug, (B2), until the broad and narrow peaks of the waveform on the scope are of equal height as shown in figure 7. If necessary, during adjustment of B2, adjust B1 to keep picture synchronized.
Momentarily interrupt the signal by switching to another channel and back again. The picture should be out of sync and show 4 or 5 sloping bars, if more than 5 or less than 4 bars are present, adjust B1 until 4 or 5 bars are present.
Turn the hold control slowly clockwise. The picture should synchronize after approximately 1/4 turn and, there after, remain in sync over the entire range of the hold control.
Adjust the horizontal drive trimmer, (B3), clockwise as far as possible without crowding in the picture, or vertical lines appearing.
Adjust the horizontal size slug, (B4), until the picture fills the mask horizontally.
Adjust the horizontal linearity slug, (B5), until the picture is symmetrical from left to right. Slight readjustment of B3 may be necessary for optimum results.

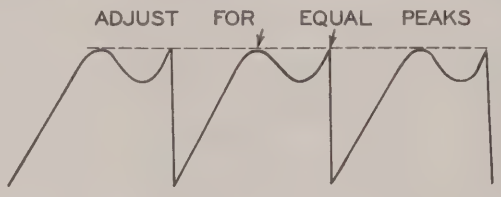
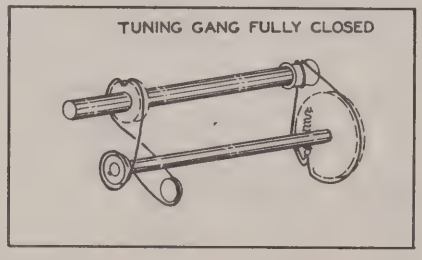


FIG. 7

DISASSEMBLY INSTRUCTIONS

1. Remove five push-on type control knobs.
2. Remove six wood screws from rear cover. Remove rear cover.
3. Disconnect built-in antenna.
4. Disconnect speaker.
5. Remove four hex head bolts from chassis. Remove chassis.
6. Remove four hex nuts from speaker. Remove speaker.

NOTE: FOR PICTURE TUBE REMOVAL, IT IS NECESSARY TO REMOVE THE CHASSIS AS OUTLINED ABOVE.



DIAL CORD STRINGING

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1A	1st RF Amplifier	800052	6BC5	7BD	
B	1st RF Amplifier	800055	6CB6	6CK	
C	1st RF Amplifier	800535	6AG5	7BD	
V2A	2nd RF Amplifier	80055	6CB6	6CK	
B	2nd RF Amplifier	80052	6BC5	7BD	
C	2nd RF Amplifier	800535	6AG5	7BD	
V3	Converter	800536	6J6	7BF	
V4	1st Video IF Amp.	800533	6AU6	7BK	
V5	2nd Video IF Amp.	800533	6AU6	7BK	
V6A	3rd Video IF Amp.	800533	6AU6	7BK	
B	3rd Video IF Amp.	800535	6AG5	7BD	
V7	4th Video IF Amp.	800533	6AU6	7BK	
V8	Video Detector - AGC Rectifier	800541	6AL5	6BT	
V9	Video Amplifier	800390	6AC7	8N	
V10	Sound IF Amplifier	800533	6AU6	7BK	
V11	Limiter	800533	6AU6	7BK	
V12	Discriminator - AF Amplifier	800035	6T8	9E	Sets coded triangle seven contains a 6AL5 with a 6AV6 in place of the 6T8.
V13	Audio Output	800270	6V6GT	7AC	
V14 A	1st Sync. Sep. -1st Sync. Amplifier	800026	12AU7	9A	
B	1st Sync. Sep. -1st Sync. Amplifier	800380	6SN7GT	8BD	
V15	2nd Sync. Amp. -1st Sync. Separator - Sync. Phase Inv.	800026	12AU7	9A	
V16	Vertical Mult.	800380	6SN7GT	8BD	
V17	Vertical Output	800016	6K6GT	7S	
V18	Horiz. AFC - Horiz. Oscillator	800380	6SN7GT	8BD	
V19	Horiz. Output	800004	6BG6G	5BT	
V20	Damper	800037	6W4GT	4CG	
V21	H. V. Rectifier	800450	1B3GT	3C	
V22	L. V. Rectifier	800290	5U4G	5T	
V23	Picture Tube	810011	16GP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: EMERSON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	450	925148	AFH888J		UPT44445		TVL-3787	▲ Filter
B	40	450							■ Filter
C	40	450							▲ Filter
C2A	40	450	925148	AFH888J		UPT44445		TVL-3787	▲ Filter
B	40	450							■ Filter
C	40	450							▲ Output Decoupling
C3A	80	250	925149	AFH161612F		UPT825-415V5		TVL-3525	▲ Filter
B	40	150							■ Filter
C	50	50							▲ Vertical Output Cathode
D	8	250							Not used
C4A	20	450	925184	AFH333J		UP21145		TVL-3778	▲ Decoupling
B	10	450							■ Filter
C	10	450							▲ Decoupling
C5	5	450	925185	PRS450/4		BR445		TVA-1702	Decoupling
C6	47			SI47	D6-470		GP1K-470	19C25	1st RF Coupling
C7	1500			SI1500	D6-152		GP2L-152	29C8	AGC Filter
C8	1-3				829-3				Variable Trimmer
C9	5000			BPD-005	DD-502		811-005	29C1	1st RF Amp. Decoupling
C10	5000			BPD-005	DD-502		811-005	29C1	1st RF Amp. Decoupling
C11	14								Fixed Padder
C12	100			SI100	D6-101		GP1K-101	19C11	2nd RF Amp. Coupling
C13	1-3				829-3				Variable Trimmer
C14	5000			BPD-005	DD-502		811-005	29C1	2nd RF Amp. Decoupling
C15	5000			BPD-005	DD-502		811-005	29C1	2nd RF Amp. Decoupling
C16	680			SI680	D6-681		GP2K-681	19C17	2nd RF Amp. Cathode
C17	14								Fixed Padder
C18	100			SI100	D6-101		GP1K-101	19C11	RF Coupling
C19	2.2				TCZ-2.2				Osc. Coupling
C20	33			SI33	D6-330		GP1K-330	19C24	Osc. Grid Cap
C21	17.5								Fixed Trimmer
C22	1-3				829-3				Variable Trimmer
C23	19								Fixed Padder
C24	2-8				829-10				Variable Trimmer
C25	10			SI10N750	TCN-10		N750K-100	19C4	Fixed Trimmer
C26	5000			BPD-005	DD-502		811-005	29C1	RF Bypass
C27	5000			BPD-005	DD-502		811-005	29C1	Fil. Bypass
C28	10	500		1469-00001	TCZ-10	5R5Q1	NPOK-100	MS-41	Fixed Trimmer
C29	800			BPD-0008	DD-801		801-001	19C1	Isolation ††
C30	2.2				TCZ-2.2				IF Coupling **
C31	1500		928006	SI1500	D6-152	1W5D15	GP2L-152	29C8	1st Video IF Decoupling
C32	1500		928006	SI1500	D6-152	1W5D15	GP2L-152	29C8	AGC Filter
C33	150	500	910215	1468-00015	D6-151	5W5T15	GP2K-151	1FM-315	IF Coupling
C34	75			SI75N750	TCN-75		N750L-750		Fixed Trimmer
C35	1500		928006	SI1500	D6-152	1W5D15	GP2L-152	29C8	2nd Video IF Amp. Dec
C36	200	500	910225	1468-0002	D6-201	5W5T2	GP2K-201	1FM-32	AGC Filter
C37	1500		928006	SI1500	D6-152	1W5D15	GP2L-152	29C8	Decoupling
C38	.25	200	923080	P488-25		GT2P25		2TM-P25	AGC Filter
C39	270	500	910214	SI270	D6-271	5W5T25	GP2K-271	19C31	IF Coupling
C40	1500		928006	SI1500	D6-152	1W5D15	GP2L-152	29C8	3rd Video IF Amp. Screen
C41	1500		928006	SI1500	D6-152	1W5D15	GP2L-152	29C8	3rd Video IF Amp. Cathode *
C42	1500		928006	SI1500	D6-152	1W5D15	GP2L-152	29C8	Decoupling
C43	270	500	910214	SI270	D6-271	5W5T25	GP2K-271	19C31	IF Coupling
C44	50			SI50NPO	TCZ-51		NPO-333-500		Fixed Trimmer
C45	1500		928006	SI1500	D6-152	1W5D15	GP2L-152	29C8	4th Video IF Amp. Screen
C46	1500		928006	SI1500	D6-152	1W5D15	GP2L-152	29C8	4th Video IF Amp. Cath.
C47	1500		928006	SI1500	D6-152	1W5D15	GP2L-152	29C8	Decoupling
C48	25		928110	SI25	D6-250	5W5Q25	GP1K-250	19C27	IF Coupling
C49	5		928017	SI5	TCZ-4.7	5W5V5	GP1K-050	MS-55	Video Det. Filter
C50	1500		928006	SI1500	D6-152	1W5D15	GP2L-152	29C8	Video Det. Fil. *
C51	50			SI50NPO	TCZ-51		NPO-333-50		Fixed Trimme

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (CONT.)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA EMERSON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C52	.05	400	923105	P488-05	DF-503	PTE4S5		4TM-S5	Video Coupling
C53	.01	400	923104	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Bias Filter
C54	.22	400	922018	P488-23		GT4P25		4TM-P22	Video Coupling
C55	.01	400	923104	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Vert. Sweep Coupling
C56	.05	400	923105	P488-05	DF-503	PTE4S5		4TM-S5	Picture Tube Grid
C57	4.7		928017	SI4.7NPO	TCZ-4.7	5R5V5	NP0K-4R7	MS-55	Sound IF Coupling
C58	5000		922025	BPD-005	DD-502	1D5D5	611-005	29C1	Sound IF Decoupling ♦
C59	1500		922025	SI1500	D6-152	1W5D15	GP2L-152	29C8	Sound IF Amp. Cath. *
C60	1500		922025	SI1500	D6-152	1W5D15	GP2L-152	29C8	AVC Filter *
C61	1500		923108	SI1500	D6-152	1W5D15	GP2L-152	29C8	Limiter Screen *
C62	1500		928006	SI1500	D6-152	1W5D15	GP2L-152	29C8	Limiter Decoupling *
C63	68	500	910221	SI68	D6-680	5W5Q7	GP1K-680	19C10	AVC Filter
C64	50	500	910222	1468-00005	D6-500	5W5Q5	GP2K-500	1FM-45	RF Bypass
C65	.0015	400	923109	P488-0015	D6-152	1W5D15	GP2L-152	6TM-D15	De-emphasis #
C66	.01	400	923104	P488-01	D6-103	PTE4S1	821-.01	4TM-S1	Audio Coupling
C67	.01	400	923104	P488-01	D6-103	PTE4S1	821-.01	4TM-S1	Audio Coupling
C68	.001	600	923109	P688-001	D6-102	PTE6D1	801-.001	6TM-D1	De-emphasis
C69	1500		928006	SI1500	D6-152	1W5D15	GP2L-152	29C8	Disc. - AF Amp. Fil.
C70	.047	400	922025	P488-047	DF-503	PTE4S5		4TM-S47	Audio Coupling
C71	.005	600	923110	P688-005	D6-502	PTE6D5	811-.005	6TM-D5	Output Plate
C72	.047	400	922015	P488-047	DF-503	PTE4S5		4TM-S47	Sync. Coupling ¶
C73	110	500	910028	1468-0001	D6-121	5W5T1	GP2K-121	1FM-31	Sync. Coupling ‡
C74	.05	400	923105	P488-05	DF-503	PTE4S5		4TM-S5	Sync. Coupling
C75	.01	400	922015	P488-01	D6-103	PTE4S1	821-.01	4TM-S1	Sync. Coupling
C76	.01	400	922015	P488-01	D6-103	PTE4S1	821-.01	4TM-S1	Vert. Sync. Coupling
C77	.002	400	923107	P688-002	D6-202	PTE6D2	801-.002	6TM-D2	Integrator Net
C78	.005	400	923108	P688-005	D6-502	PTE6D5	811-.005	6TM-D5	Integrator Net
C79	.005	400	923108	P688-005	D6-502	PTE6D5	811-.005	6TM-D5	Integrator Net
C80	.005	600	923110	P688-005	D6-502	PTE6D5	811-.005	6TM-D5	Vert. MV Feedback
C81	.05	400	923105	P488-05	DF-503	PTE4S5		4TM-S5	Vert. Discharge Cap
C82	.047	400	922037	P488-047	DF-503	PTE4S5		4TM-S47	Vert. Sweep Coupling
C83	.22	400	922018	P488-22		GT4P25		4TM-P22	Vertical Shaping †
C84	.025	600	923084	P688-025	DF-203	PTE6S2		6TM-S22	Horiz. Output Coupling
C85	82	500	910222	SI82	TCZ-82	5W5T1	GP1K-820	1FM-31	Horizontal Sync. Coupling
C86	.05	400	923105	P488-05	DF-503	PTE4S5		4TM-S5	AFC Filter
C87	.5	200	923102	P388-5		GT2P5		4TM-P5	AFC Filter
C88	.02	600	923084	P688-02	DF-203	PTE6S2		6TM-S2	AFC Filter
C89	82	500	910022	SI82	TCZ-82	5W5T1	GP1K-820	1FM-31	Horiz. Feedback
C90	.047	400	922025	P488-047	DF-503	PTE4S5		4TM-S47	Horiz. AFC Plate
C91	180	500	910042	SI180	D6-181	5R5T2	GP2K-181	MS-32	Horiz. Osc. Grid
C92	.01	600	922041	P688-01	D6-103	PTE6S1		6TM-S1	Fixed Trimmer
C93	1000	500	910211	1467-001	D6-102	1W5D1	GP2K-102	1FM-21	Horiz. Discharge
C94	470	500	910017	5W5T5	D6-471	5W5T5	GP2K-471	1FM-35	Horiz. Sweep Coupling
C95	.047	600	922023	P688-047	DF-503	PTE6S5		6TM-S47	Horiz. Output Screen
C96	.25	200	923080	P488-25		GT2P25		2TM-P25	Horiz. Output Cathode
C97	1500		928006	SI1500	DD-152	1W5D15	GP2L-152	29C8	Horiz. Output Cathode
C98	18	6000	928053						Horizontal Plate
C99	.008	1000	922051						Damper Filter
C100	.022	1000	922052	P1088-022				MB-S22	Damper Filter
C101	1500		928006	SI1500	D6-152	1W5D15	GP2L-152	29C8	RF Bypass
C102	500	20000	923018	HV20B	TV2-502				HV Filter
C103	1500		928006	SI1500	D6-152	1W5D15	GP2L-152	29C8	Fil. Bypass
C104	.05	600	922104	P688-05	DF-503	PTE6S5		6TM-S5	Line Filter
C105	.05	600	922104	P688-05	DF-503	PTE6S5		6TM-S5	Line Filter
C106	1500		928006	SI1500	D6-152	1W5D15	GP2L-152	29C8	RF Bypass *
C107	.25	400	922018	P488-22		GT4P25		4TM-P22	Video Amp. Cathode *
C108	.02	400	923084	P688-025	DF-203	PTE4S2		4TM-S2	RF Bypass *
C109	1500		928006	SI1500	D6-152	1W5D15	GP2L-152	29C8	RF Bypass *

†† Some models use 91MFD in this application.
** Some models use 270MFD in this application.
♦ Some models use .047MFD in this application.
Some models use .001MFD in this application.
¶ Some models use .01MFD in this application.
‡ Some models use 220MFD in this application.
† Some models use .02MFD in this application.
* Not used in all models.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA EMERSON PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	1500Ω	½	390167			SBB-654-S	Contrast Control - Front
B	1Meg	½					Volume Control And SW - Rear
R2	1500Ω	4	390176		RTV-199	SVP-994	Focus Control - Wire Wound
R3A	100KΩ	½	390162	Q11-128	AG-49-S	AN-40	Brightness Control
B	Shaft		Not req.	Not req.	RS-2	AK-4	Attach to R3A Per Instructions
R4A	1Meg	½	390163	Q11-137	AG-61-S	AN-69	Vertical Hold Control
B	Shaft		Not req.	Not req.	RS-2	AK-4	Attach to R4A Per Instructions
R5A	50KΩ	½	390164	Q11-123	AG-44-S	AN-31	Horizontal Hold Control
B	Shaft		Not req.	Not req.	RS-2	AK-4	Attach to R5A Per Instructions
R6A	2 Meg	½	390142	Q11-139	AG-83-S	AN-75	Vertical Size Control
B	Shaft		Not req.	Not req.	FKS-1/4	AK-1	Attach to R6A Per Instructions
R7	5000Ω	2	390143	W-5000	43-5000	VK-135	Vertical Linearity Control - Wire Wound

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA EMERSON PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ± 10% UNLESS OTHERWISE SPECIFIED
R8	150Ω	½		BTS-150	AGC Network
R9	560Ω	½		BTS-560	1st RF Amp. Grid
R10	1000Ω	20%		BTS-1000	1st RF Amp. Decoupling - See Note 2
R11	1200Ω			BTS-1200	1st RF Coil Shunt
R12	10KΩ				2nd RF Amp. Grid
R13	100Ω	20%		BTS-100	2nd RF Amp. Cathode
R14	1500Ω			BTS-1500	2nd RF Coil Shunt
R15	220Ω	20%		BTS-220	Decoupling
R16	5600Ω				Mixer Grid
R17	100KΩ	20%			Mixer Grid
R18	10KΩ	20%			Mixer Plate
R19	10KΩ				Oscillator Grid
R20	1000Ω		350492	BTS-1000	Decoupling
R21	5600Ω		340672	BTS-5600	1st Video IF Transformer Shunt
R22	68Ω	20%	340212		1st Video IF Amp. Cathode
R23	1000Ω	20%	350492	BTS-1000	1st Video IF Amp. Decoupling
R24	470Ω	20%	340412	BTS-470	AGC Network - See Note 3
R25	470Ω	20%	340412	BTS-470	AGC Network - See Note 3
R26	10KΩ	20%	340732		2nd Video IF Transformer Shunt
R27	10KΩ	20%	340732		2nd Video IF Amp. Grid

RESISTORS (CONT.)

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA EMERSON PART No.	IRC PART No.	IDENTIFICATION CODES
R28	68Ω	20%	340212		2nd Video IF Amp. Cathode
R29	1000Ω	20%	350492	BTS-1000	2nd Video IF Amp. Decoupling
R30	1000Ω	20%	350492	BTS-1000	Bias Network - See Note 1
R31	10KΩ		340732	BTS-10K	3rd Video IF Transformer Shunt - See Note 4
R32	220Ω		340332	BTS-220	3rd Video IF Amp. Cathode - See Note 5
R33	10KΩ		340732	BTS-10K	3rd Video IF Amp. Screen - See Note 3
R34	470KΩ	20%	351132	BTS-470K	Bias Network - See Note 1 and 3
R35	2700Ω		340592	BTS-2700	4th Video IF Amp. Grid - See Note 1
R36	220Ω	20%	350332	BTS-220	4th Video IF Amp. Cathode
R37	10KΩ		340732	BTS-10K	4th Video IF Amp. Screen - See Note 3
R38	4700Ω			BTS-4700	Video Det. Diode Load - See Note 6
R39	15KΩ			BTS-15K	Video Peaking Coil Shunt - See Note 1
R40	22KΩ		340812	BTS-22K	AGC Network
R41	100KΩ		340972	BTS-100K	AGC Load
R42	1Meg	20%	351212	BTS-1Meg	AGC Network
R43	220KΩ		341052	BTS-220K	Bias Network
R44	2.2Meg	20%	341292	BTS-2.2Meg	Bias Network
R45	1Meg		341212	BTS-1Meg	Video Amp. Grid
R46	10Ω		340012	BW-½-10	Video Amp. Cathode - See Note 1
R47	5600Ω	5%	397065	BTB-5600-5%	Video Amp. Plate - See Note 8
R48	22KΩ		340812	BTS-22K	Video Peaking Coil Shunt
R49	100KΩ		340972	BTS-100K	Vertical Retrace Blanking Network
R50	100KΩ		340972	BTS-100K	Vertical Retrace Blanking Network
R51	220KΩ		341052	BTS-220K	Picture Tube Cathode
R52	470Ω	20%	340412	BTS-470	Bias Network - See Notes 3 and 7
R53	220Ω		340332	BTS-220	Sound IF Amp. Cathode
R54	1Meg		341212	BTS-1Meg	AVC Network - See Notes 2 and 13
R55	470Ω		340412	BTS-470	Bias Network - See Note 3
R56	47KΩ		340892	BTS-47K	Limiter Grid
R57	27KΩ	1	370832	BTA-27K	Limiter Screen
R58	10KΩ		340732	BTS-10K	Voltage Divider
R59	100KΩ		340972	BTS-100K	Disc. Diode Load
R60	100KΩ		340972	BTS-100K	Disc. Diode Load
R61	68KΩ		340932	BTS-68K	De-emphasis
R62	10Meg		351452	BTS-10Meg	AF Amp. Grid
R63	220KΩ		341052	BTS-220K	AF Amp. Plate - See Note 8
R64	470KΩ		341132	BTS-470K	Output Grid
R65	330Ω	1	370372	BTA-330	Output Cathode
R66	2500Ω	5	394107	1 3/4A-2500	Output Decoupling - Wire Wound
R67	10KΩ	20%	350732	BTS-10K	Isolation
R68	47KΩ		340892	BTS-47K	Sync. Amp. Plate - See Note 9
R69	10KΩ	20%	350732	BTS-10K	Isolation
R70	2.2Meg	20%	351292	BTS-2.2Meg	1st Sync Sep. Grid - See Note 10
R71	100KΩ		340972	BTS-100K	1st Sync. Sep. Grid - See Note 11
R72	22KΩ		340812	BTS-22K	1st Sync. Sep. Plate
R73	10KΩ	20%	350732	BTS-10K	Voltage Divider
R74	330KΩ		341092	BTS-330K	2nd Sync. Sep. Grid
R75	10KΩ	2	370732	BTB-10K	2nd Sync. Sep. Plate
R76	1Meg	20%	351212	BTS-1Meg	Sync. Phase Inv. Grid
R77	1500Ω		340532	BTS-1500	Sync. Phase Inv. Cathode
R78	2200Ω		340572	BTS-2200	Sync. Phase Inv. Plate
R79	220Ω	20%	350332	BTS-220	Sync. Phase Inv. Plate
R80	22KΩ		340812	BTS-22K	Voltage Divider
R81	22KΩ		340812	BTS-22K	Integrator
R82	8200Ω		340712	BTS-8200	Integrator
R83	8200Ω		340712	BTS-8200	Integrator
R84	2200Ω		340572	BTS-2200	Vertical MV Cathode
R85	150KΩ	1	371012	BTA-150K	Vertical MV Plate
R86	470KΩ		341132	BTS-470K	Vertical MV Grid
R87	470KΩ		341132	BTS-470K	Vertical MV Plate - See Note 12
R88	10KΩ	20%	350732	BTS-10K	Vertical Peaking
R89	3.3Meg		341332	BTS-3.3Meg	Vertical Output Grid
R90	470Ω		340412	BTS-470	Vertical Output Cathode
R91	470Ω	1	370412	BTA-470	Decoupling
R92	470Ω	1	370412	BTA-470	Decoupling
R93	220KΩ		341052	BTS-220K	Damping
R94	150KΩ		341012	BTS-150K	Voltage Divider
R95	220KΩ		341052	BTS-220K	Voltage Divider
R96	330KΩ		341092	BTS-330K	Horizontal AFC Grid
R97	820KΩ		341192	BTS-820K	Horizontal AFC Grid
R98	82KΩ	5%	360952	BTA-82K-5%	Horizontal AFC Cathode
R99	330KΩ	5%	361092	BTA-330K-5%	Horizontal AFC Cathode
R100	3900Ω		340832	BTS-3900	Horizontal AFC Filter
R101	100KΩ	1	370972	BTA-100K	Horizontal AFC Plate
R102	120KΩ	1	370992	BTA-120K	Voltage Divider
R103	150KΩ	5%	360102	BTA-150K-5%	Horizontal Oscillator Grid
R104	82KΩ		370952	BTA-82K	Horizontal Oscillator Plate
R105	10KΩ		340732	BTS-10K	Decoupling
R106	8200Ω		340712	BTS-8200	Horizontal Oscillator Coil Shunt
R107	150KΩ		340102	BTS-150K	Horizontal Feedback
R108	68Ω	20%	340212		Parasitic Suppressor
R109	1Meg	20%	351212	BTS-1Meg	Horizontal Output Grid
R110	100Ω	2	397027	BW-2-100	Horizontal Output Cathode - Wire Wound
R111	10KΩ	5	394104	1 3/4A-10K	Horizontal Output Screen - Wire Wound
R112	750Ω	10	394108	1 3/4A-750	Horizontal Size Coil Shunt - Wire Wound
R113	1Meg	20%	381212		HV Filter
R114	3300Ω	II		BTB-1000	Voltage Divider - See Note 3
R115	3900Ω	II		BTB-3900	Filter - See Note 3
R116	100KΩ	1	370972	BTA-100K	Isolation
R117	1000Ω	½	350492	BTS-1000	AGC Network - See Note 1
R118	2700Ω	½	340592	BTS-2700	3rd Video IF Amp. Plate - See Note 1
R119	1000Ω	½	350492	BTS-1000	3rd Video IF Amp. Plate Decoupling - See Note 1
R120	1000Ω	½	350492	BTS-1000	4th Video IF Amp. Plate Decoupling - See Note 1
R121	1000Ω	½	350492	BTS-1000	Limiter Plate - See Note 1
R122	4000Ω	5	394108	1 3/4A-4000	Voltage Divider - Wire Wound - See Note 1
R123	8000Ω	10	394060-6	1 3/4A-8000	Bleeder - Wire Wound - See Note 1
R124	680KΩ	½		BTS-6800	5th Video IF Transformer Shunt - See Note 1

Note 1. Not used in all models.
Note 2. Some models use 220Ω resistor in this application.
Note 3. Some models use 1000Ω resistor in this application.
Note 4. Some models use 5600Ω resistor in this application.
Note 5. Some models use 100Ω resistor in this application.
Note 6. Some models use 3900Ω resistor in this application.
Note 7. Some models use 10Ω resistor in this application.
Note 8. Some models use 470KΩ resistor in this application.
Note 9. Some models use 10KΩ resistor in this application.
Note 10. Some models use 330KΩ resistor in this application.
Note 11. Some models use 3.3 meg resistor in this application.
Note 12. Some models use 680KΩ resistor in this application.
Note 13. Some models use parallel resistors in this application to obtain desired value.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA EMERSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC	780VCT	5VAC	6.3VAC	730026 Or			TP-392 And
	③ 1.82A	.210ADC	③ 3A	③ 1.2A	730027 And			F633 ③④
			SEC. 4	SEC. 5	730028 ⑥			
			6.3VAC	6.3VAC				
			③ 3A	③ 5A				

③ Used for Sec. #4
④ Mount separately above or below chassis where space permits.
⑥ Filament transformer used in some models.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING DC RESISTANCE PRI.	RATING DC RESISTANCE SEC.	REPLACEMENT DATA EMERSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T2	52Ω		738047 Or				Horizontal Output Trans.
	Tap 85Ω		738048				
T3	440Ω	.4Ω	738044				Vertical Output Trans.
T4A	43Ω		708043				Horizontal Deflection Coil
B	3.3Ω						Vertical Deflection Coil
T5	1.56KΩ						Focus Coil

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA EMERSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T6	5.2KΩ	4Ω	330Ω	.7Ω	734051	A-3849	A-3019	R0-9 ⑤	⑤ Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS FIELD RES.	RATINGS V. C. IMP.	REPLACEMENT DATA EMERSON PART No.	VIKING PART No.	QUAM PART No.	NOTES
SP1A	PM	4Ω	180050 ①	12J12	12A31	① Used in Console Models
B	PM	4Ω	180041 ②	6J4	6A15	② Used in Table Models
	CONE DIA.	V. C. DIA.				
SP2A	11 7/8"	1"				
	5 7/8"	9/16"				

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D.C. RESISTANCE	RATINGS INDUCTANCE (0 CURRENT 1000 ↺)	REPLACEMENT DATA EMERSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
L1	.200A	110Ω	4.8 Henries	737011	C-1410 ⑤	C-2991 ⑤	TR-4200⑤	⑤ Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA EMERSON PART No.	MEISSNER PART No.	NOTES
L2	Low-Band Ant. Coil	0Ω	0Ω	*		* Tuner Part # 470606
L3	High-Band Antenna Coil	0Ω	0Ω	*		
L4	1st RF Coil	0Ω		*		High-Band
L5	2nd RF Coil	0Ω		*		High-Band
L6	High-Band Osc. Coil	0Ω		*		
L7	1st RF Coil	0Ω		*		Low-Band
L8	2nd RF Coil	0Ω		*		Low-Band
L9	Low-Band Osc. Coil	0Ω		*		
L10	Fil. Choke	0Ω		*		
L11	RF Choke	0Ω		*		
L12	Conv. Plate Coil	.1Ω		*		
L13	1st Video IF	.6Ω				
L14	2nd Video IF	.4Ω	0Ω	720105		
L15	3rd Video IF	.3Ω		720088		
L16	RF Choke	3Ω		705014		
L17	4th Video IF	.2Ω	0Ω	720091		
L18	5th Video IF	1.2Ω	1.4Ω	720089		
L19	RF Choke			705014 ,		20 Microhenries (Used in Chassis 120134-B)
L20	4.5MC Trap	2Ω		708032		
L21A	RF Choke	3Ω		705014		20 Microhenries (Used in Chassis 120134-G)
B	RF Choke			708109		225 Microhenries (All Later Models)
L22A	Peaking	17Ω				1000 Microhenries (Yellow and Blue Dot)
B	Peaking			708115		660 Microhenries (Used in Some Models)
C	Peaking			708099		330 Microhenries (Used in Late Models Only)
L23A	Peaking	15Ω		708099		330 Microhenries (White Dot)
B	Peaking			708109		225 Microhenries (Used in Some Models)
C	Peaking			708095		180 Microhenries (Used in Late Models Only)
L24A	Peaking	19Ω		708115		660 Microhenries (Yellow Dot)
B	Peaking			708099		330 Microhenries (Used in Late Models Only)
L25	1st Sound IF	4Ω		708093		35 Microhenries (Red Dot) 3-35MMF Trimmer
L26	2nd Sound IF	2.3Ω	2.3Ω	720081		
L27	Sound Disc.	1.7Ω	1.5Ω	708018		
L28	Horiz. Osc. Trans.	125Ω	40Ω	738035		
L29	Horiz. Size	6Ω		708058		
L30	Horiz. Lin.	35Ω		708003		

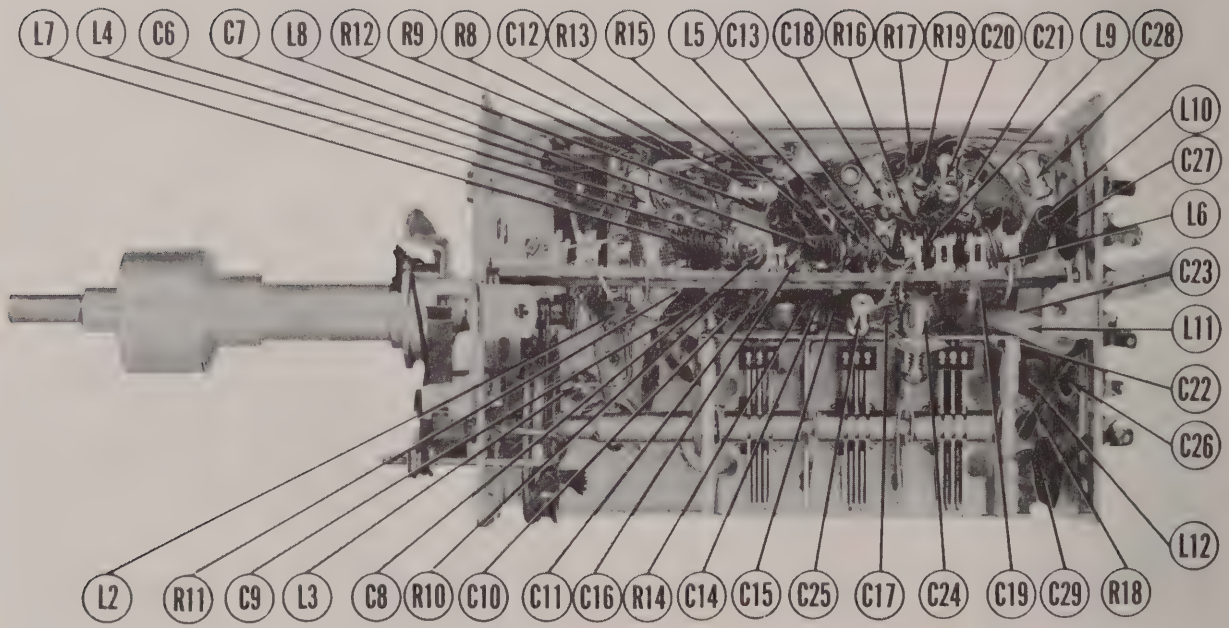
PARTS LIST AND DESCRIPTIONS (Continued)

FUSES

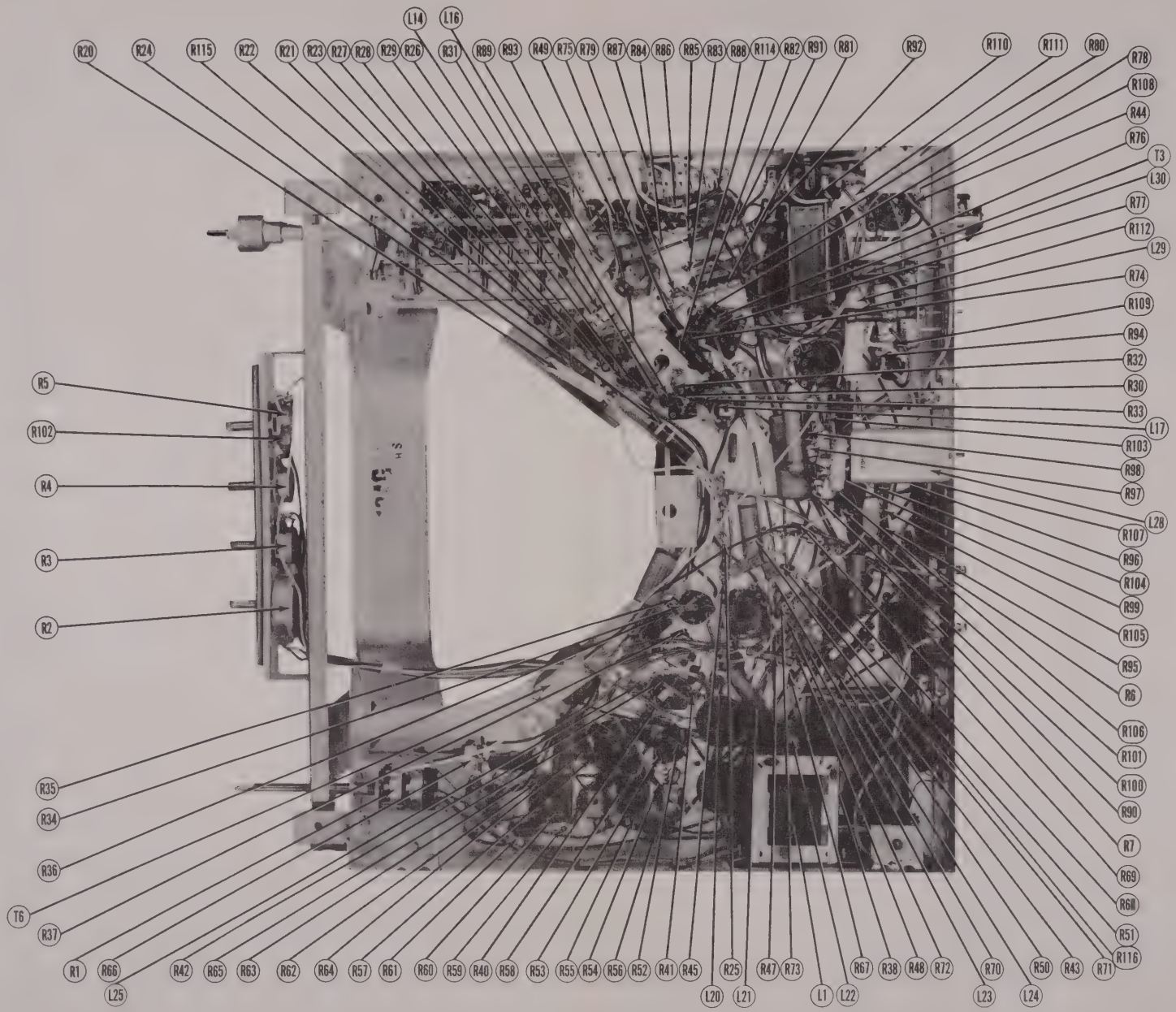
ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			EMERSON PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M1	3AG Pigtail	.250	808170		318.250		

MISCELLANEOUS

ITEM No.	PART NAME	EMERSON PART No.	NOTES
M2A	RF Tuner	470606	
B	RF Tuner	470651	
C	RF Tuner	470644	
M3	Ion Trap	708061	
	Glass	520148	Models-684B, 685B (Chassis 120134B)
	Glass	635035	Models-674B, 677B, 678B (Chassis 120134B)
	Knob	460175	Contrast (Models 674B, 677B, 678B, 684B, 685B.)
	Knob	460176	Off/On Volume (Models-674B, 677B, 678B, 684B, 685B)
	Knob	460177	Selector (Models-674B, 677B, 678B, 684B, 685B.)
	Knob	460178	Fine Tuning (Models-674B, 677B, 678B, 684B, 685B.)
	Spring	542279	Compression (For Part 460175)
	Spring	542278	Compression (For Part 460178)
A11	Trimmer	900064	3-35MMF (1st Sound IF Trans.)
B3	Trimmer	900054	25-300MMF (Horiz. Drive)



.RF TUNER



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

KNIGHT
MODEL 96-326

KNIGHT
MODEL 96-326

TRADE NAME	Knight, Model 96-326
SUPPLIER	Allied Radio Corp., 833 W. Jackson Blvd. Chicago, Illinois
TYPE SET	AC Operated Combination Phono-Recorder-Radio, Superheterodyne Receiver
TUBES (SIX)	Types 6SA7GT Converter, 6SK7GT IF Amp., 6SQ7GT Det-AVC-AF, 6SQ7GT or 6SJ7 Mic. Amp., 6V6GT Power Output, 6X5GT Rectifier

POWER SUPPLY 105-125 Volts AC RATING: .48 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST 535-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.		Loop	455KC (400Ω Mod)	Tuning gang fully closed.	Across voice coil.	A1, A2, A3, A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.		Loop	1620KC	Tuning gang fully open.	"	A5	"
3.		Loop	1400KC	Tune for max. output.	"	A6	Adjust for maximum output. Set pointer to 140 on dial scale.
4.		Loop	600KC	"	"		Adjust end plates on ant. section of tuning gang for maximum output. Repeat steps 3 & 4 until no further output can be obtained.

HOWARD W. SAMS & CO., INC. • Indianapolis 1, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		KNIGHT PART No.	STANDARD REPLACEMENT		
V1	Converter	6SA7GT	6SA7GT	8AD	
V2	IF Amplifier	6SK7GT	6SK7GT	8N	
V3	Detector-AVC-AF Amplifier	6SQ7GT	6SQ7GT	8Q	
V4A	Microphone Amp.	6SQ7GT	6SQ7GT	8Q	
B	Microphone Amp.	6SJ7	6SJ7	8N	
V5	Power Output	6V6GT	6V6GT	7AC	
V6	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	KNIGHT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	20	450	††	AF4444J		UP222245		TVL-4763	▲ Filter
B	20	450							■ Filter
C	20	350							▲ Filter
D	10	350							Output Cathode
C2	8	350		PRS350/8		BR835A		TVA-1603	Decoupling *
C3	25	25	1002	PRS25/25		BR252A		TVA-1205	Mic. Pre-Amp. Cathode †
C4	.05	600	803-B	P688-05	DF-503	PTE6S5		6TM-S5	AVC Filter *
C5A	100		‡ 811	SI100	*PC-50	5W5T1	GP1K-100	19C11	Diode RF Filter
B	100			SI100		5W5T1	GP1K-100	19C11	Diode RF Filter
C6	1000		§812	SI1000	D6-102	1W5D1	GP2L-001	19C1	Tone Comp.
C7	1000		#813	BPD-01	DD-103	PTE4S1	821-01	36C1	Audio Coupling
C8	250		809	SI250	D6-251	5W5T25	GP2K-250	19C13	AF Amp. Plate
C9	1000		♦814	BPD-01	DD-103	PTE6S1	821-01	36C1	Audio Coupling
C10	5000			BPD-005	DD-502	PTE6D5	811-005	29C1	Tone Comp. **
C11	.005	600		P688-005	D6-502	PTE6D5	811-005	6TM-D5	Output Plate ††
C12	5000			BPD-005	DD-502	PTE6D5	811-005	29C1	Audio Coupling †
C13	1000		¶814	BPD-01	DD-103	PTE6S1	821-01	36C1	Audio Coupling
C14	.01	400	802-A	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Line Filter

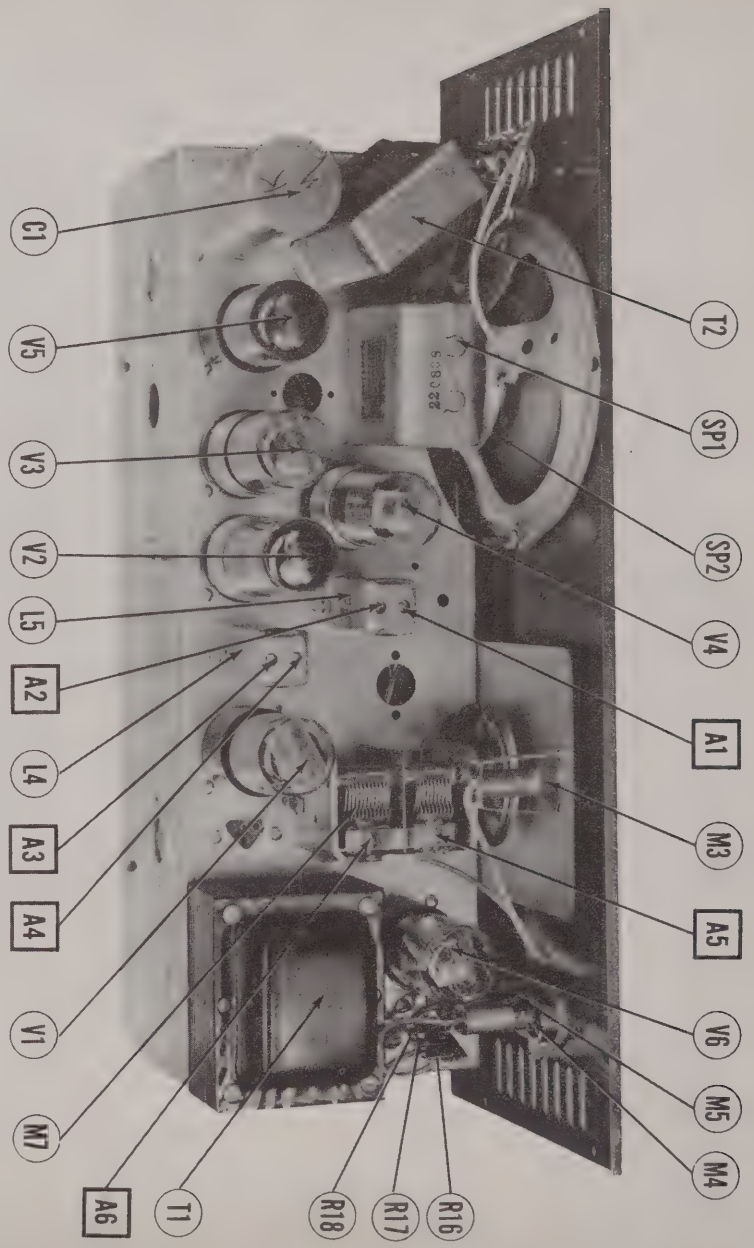
* Some models use .1MFD in this application.
† Not used in all models.
‡ Items C5A, C5B, and R4 are combined into one unit.
§ Items C6 and R7 are combined into one unit.
# Items C7 and R8 are combined into one unit.
♦ Items C9 and R9 are combined into one unit.
¶ Items C13 and R21 are combined into one unit.
** Some models use .05 MFD in this application.
†† Some models use .002 MFD in this application.
Some models use 14-8-8-/450V., 10/25 in this application. Mfgrs. Part # 1005

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	KNIGHT PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	500KΩ	½		Q13-133	AG-60-Z	BSK-60	Tone Control - See Note 1
B	Shaft			Not Req	KSS-3	Not Req	Attach to R1A per instructions
R2A	500KΩ	½	401	Q13-133	AG-60-Z	BSK-60-S	Volume Control
B	Shaft			Not Req	KSS-3	Not Req	Attach to R2A per instructions
C	Switch			76-1	SWB-	Not Req	Attach to R2A per instructions

Note 1 Some models use 50KΩ Control in this application

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	KNIGHT PART No.	IRC PART No.	
R3	22KΩ	½	517		Osc. Grid
R4	50KΩ	½	523 ‡		Diode Filter
R5	2.2Meg	½	615	BTS-2.2Meg	AVC Network
R6	47Ω	½			AF Amp. Cathode - See Note 2
R7	5Meg	½	812 §		Series Phono
R8	5Meg	½	813 #	BTS-470K	AF Amp. Grid
R9	250KΩ	½	814 ♦	BTS-270K	AF Amp. Plate
R10	2.2Meg	½	615	BTS-2.2Meg	Feedback Network
R11	510KΩ	½	501	BTS-470K	Output Grid - See Note 2
R12	330Ω	1	602	BTA-330	Output Cathode
R13	50KΩ	½	523		Inpedance Matching - See Note 2
R14	4.3Ω	½	526	BW-1-4.3	Output Transformer Load
R15	10Ω	½	527		Output Transformer Load
R16	510KΩ	½	501	BTS-470K	Indicator Network
R17	510KΩ	½	501	BTS-470K	Indicator Network
R18	250KΩ	½	529	BTS-270K	Indicator Network
R19	2200Ω	½	504	BTS-2200	Mike Pre-Amp Cathode - See Note 2
R20	5Meg	½	525	BTS-470K	Mike Pre-Amp. Grid
R21	250KΩ	½	814 ¶	BTS-270K	Mike Pre-Amp. Load
R22	15KΩ	2	606	BTB-15K	Filter
R23	1000Ω	1	607	BTA-1000	Filter
R24	15KΩ	2	606	BTB-15K	Voltage Divider - See Note 2

Note 2 Not used in all models.
‡ Items R4, C5A, and C5B are combined into one unit.
§ Items R7 and C6 are combined into one unit.
# Items R8 and C7 are combined into one unit.
♦ Items R9 and C9 are combined into one unit.
¶ Items R21 and C13 are combined into one unit.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	KNIGHT PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC @ .48A	560VCT .065ADC	6.3VAC @ 2.5A		1101	P-6011		

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		KNIGHT PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	5.6KΩ	3Ω	450Ω	.82Ω SEC. 2 2.7KΩ	1202				

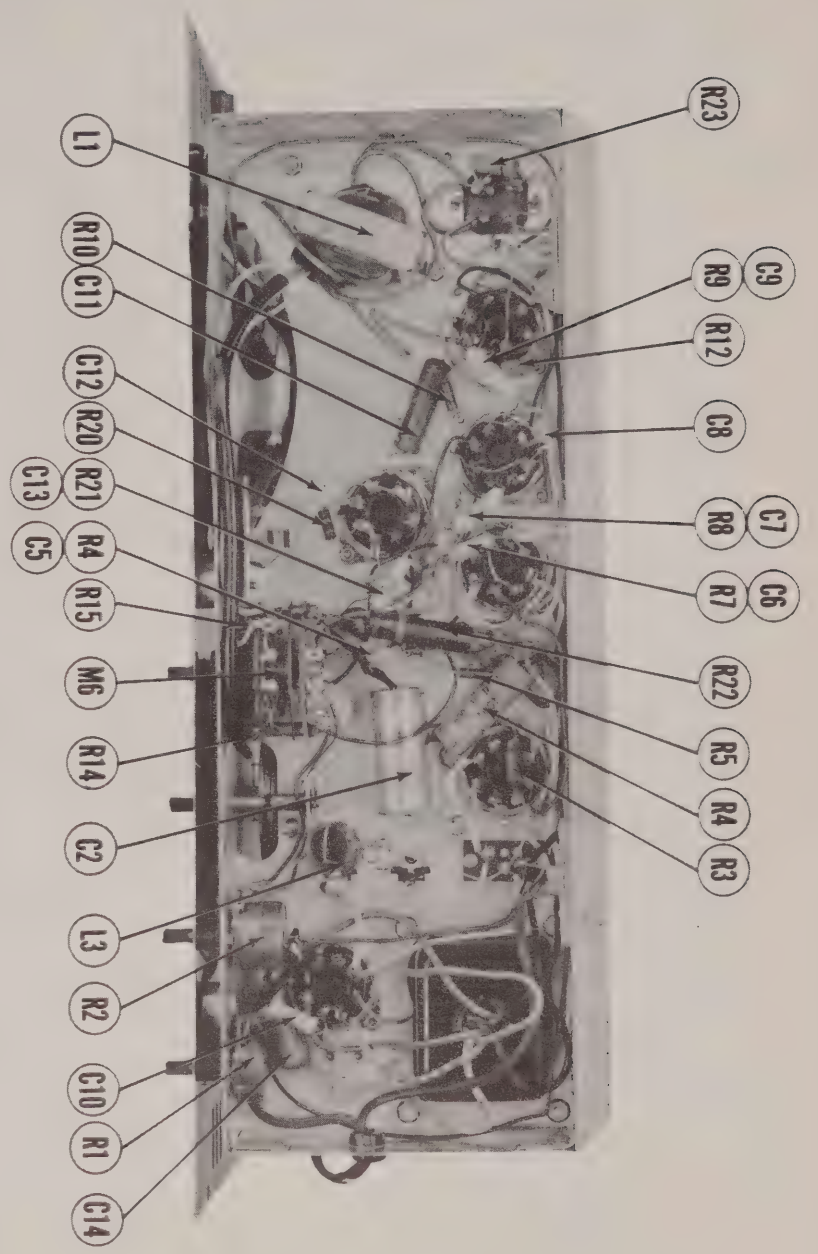
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			KNIGHT PART No.	JENSEN PART No.	QUAM PART No.	
SP1	FIELD PM	V. C. IMP 3Ω	2603	ST-105 Model P5-X	5A1	
SP2	CONE DIA. 4 5/16"	V. C. DIA. 9/16				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ω)	KNIGHT PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.065A	230Ω	5.5 Henries	1301	C-1325 ①	C-2977 ①	R-650	① Drill one new mounting hole

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	KNIGHT PART No.	MEISSNER PART No.	
L2	Loop Ant.	1.5Ω		5112		Tap At .9Ω
L3	Osc. Coil	6Ω		1403		
L4	1st. IF	13Ω	13Ω	1402	16-6678	
L5	2nd. IF	13Ω	13Ω	1402	16-6678	

PHONO CARTRIDGE and NEEDLE

ITEM No.	REPLACEMENT DATA							REMARKS
	KNIGHT PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1	2530C	GC-AG-J	G-AG	WC36B	A56U	43	0-2 or	† Cutting Head
M2		X-26 †					S-2	

ASTATIC, SHURE, AND ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED.

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					KNIGHT PART No.		
M3	Bayonet	6-8	.15	Brown			Type #47

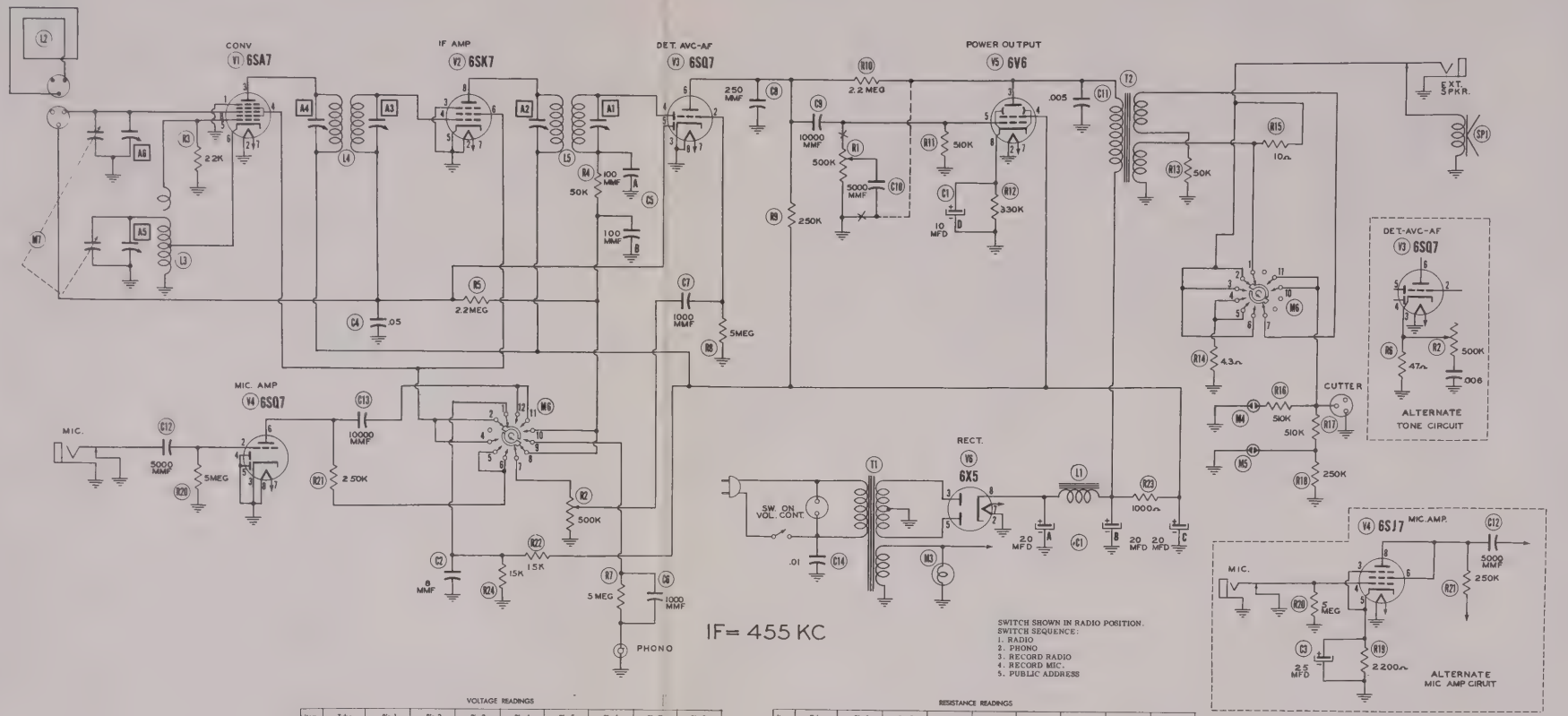
MISCELLANEOUS

ITEM No.	PART NAME	KNIGHT PART No.	NOTES
M4	Neon Lamp	2202-A	NE-51
M5	Neon Lamp	2202-A	NE-51
M6	Switch	2204	Function
M7	2 Gang Var. Cap.	1004	(16-389MMF, 28-187MMF)
	Dial Scale	1722	
	Dial Pointer	1736	

TUNING GANG FULLY CLOSED

21/2 TURNS

DIAL CORD DRIVE



SWITCH SHOWN IN RADIO POSITION.
SWITCH SEQUENCE:
1. RADIO
2. PHONO
3. RECORD RADIO
4. RECORD MIC.
5. PUBLIC ADDRESS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SA7GT	0V	0V	260VDC	90VDC	8-12.5VDC	0V	6.3VAC	-.7VDC
V 2	6SK7GT	0V	0V	0V	-.7VDC	0V	90VDC	6.3VAC	260VDC
V 3	6SQ7GT	0V	-.6VDC	0V	-.7VDC	-.8VDC	110VDC	6.3VAC	0V
V 4	6SQ7GT	0V	▲-.6VDC	0V	0V	0V	▲100VDC	6.3VAC	0V
V 5	6V6GT	0V	0V	270VDC	260VDC	0V	0V	6.3VAC	14VDC
V 6	6X5GT	0V	0V	270VAC	0V	270VAC	0V	6.3VAC	310VDC

‡ TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SA7GT	0Ω	0Ω	†1.3KΩ	†16KΩ	23KΩ	.9Ω	.1Ω	2.7Meg
V 2	6SK7GT	0Ω	0Ω	0Ω	2.7Meg	0Ω	†16KΩ	.1Ω	†1.2KΩ
V 3	6SQ7GT	0Ω	5Meg	0Ω	550KΩ	2.7Meg	†250KΩ	.1Ω	0Ω
V 4	6SQ7GT	0Ω	5Meg	0Ω	0Ω	0Ω	▲†265KΩ	.1Ω	0Ω
V 5	6V6GT	0Ω	0Ω	†680Ω	†1.2KΩ	500KΩ	Inf.	.1Ω	330Ω
V 6	6X5GT	0Ω	0Ω	170Ω	Inf.	170Ω	Inf.	.1Ω	65KΩ

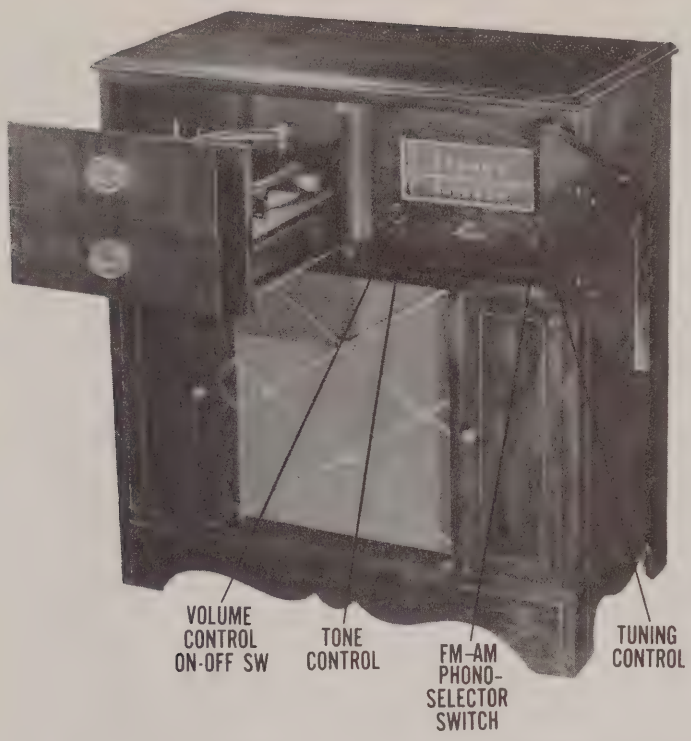
V & R TAKEN WITH FUNCTION SWITCH IN RADIO POSITION EXCEPT AS NOTED
▲ FUNCTION SWITCH IN RECORD MIC OR PA POSITION
† MEASURED FROM PIN 8 OF V8

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1951

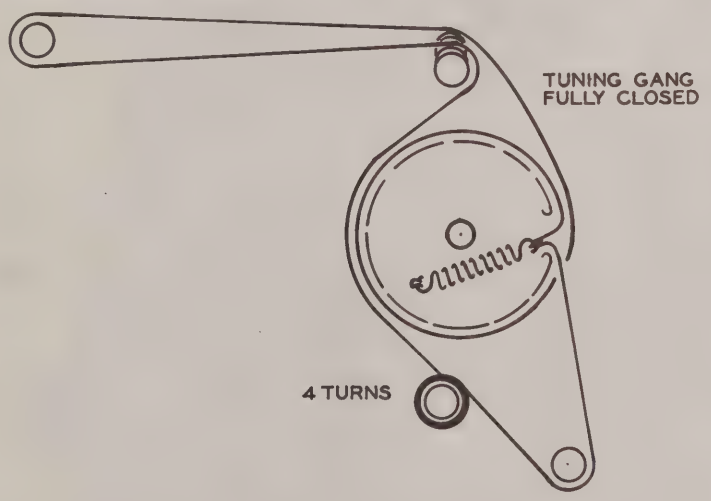
MAJESTIC
MODEL 80FMP2



MAJESTIC
MODEL 80FMP2

TRADE NAME	Majestic, Model 80FMP2	
MANUFACTURER	Majestic Radio And Tel. Div. of Wilcox-Gay Corp., 70 Washington St., Brooklyn, New York	
TYPE SET	AC Operated Combination Phono-Radio, AM-FM Superheterodyne Receiver With Loop Antenna	
TUBES (EIGHT)	Types 12AT7 FM RF Amp., 6BE6 FM Osc.-AM Conv., 6BA6 1st IF Amp., 6BA6 2nd FM IF Amp., 6AL5 Ratio Det., 6AV6 AM Det.-AVC AF, 6V6GT Power Output, 5Y3GT Rectifier	
POWER SUPPLY	105-125 Volts AC	RATING .68 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	540-1650KC	FREQ. MOD. 88-108MC

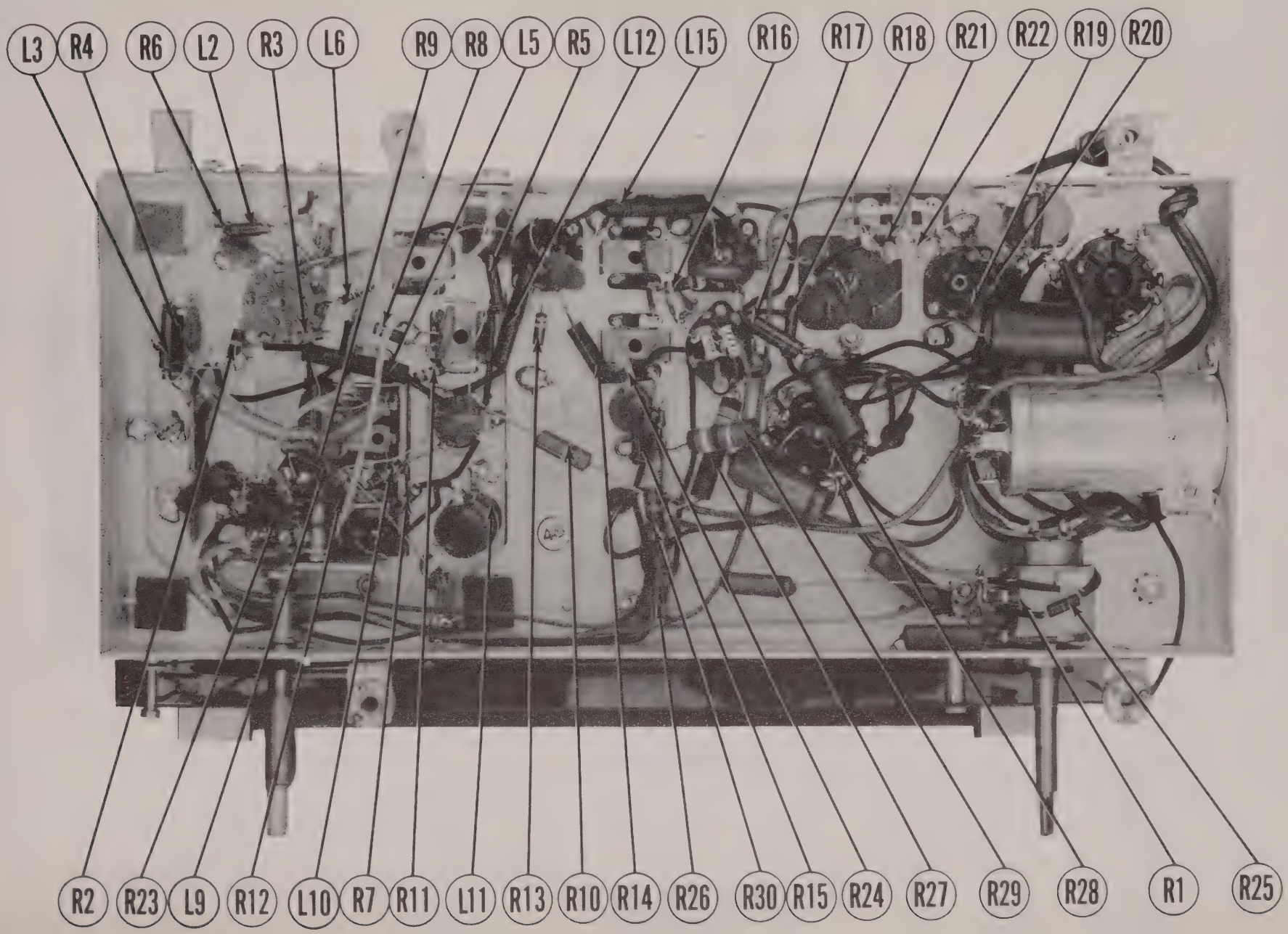
FOR SERVICE INFORMATION ON RECORD CHANGER UNIT SEE WEBSTER-CHICAGO MODEL 100 IN PHOTOFACT SET 135 FOLDER 14.

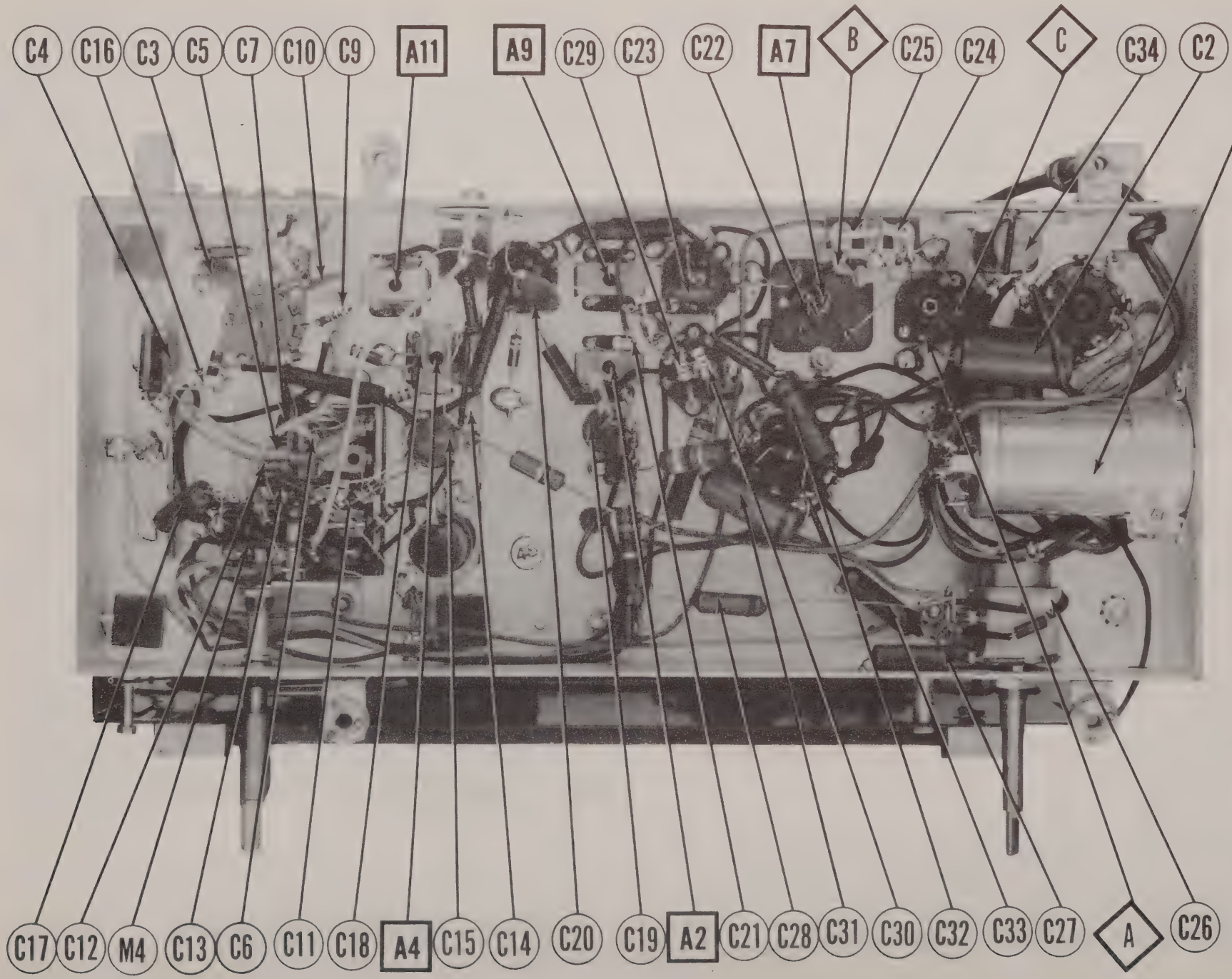


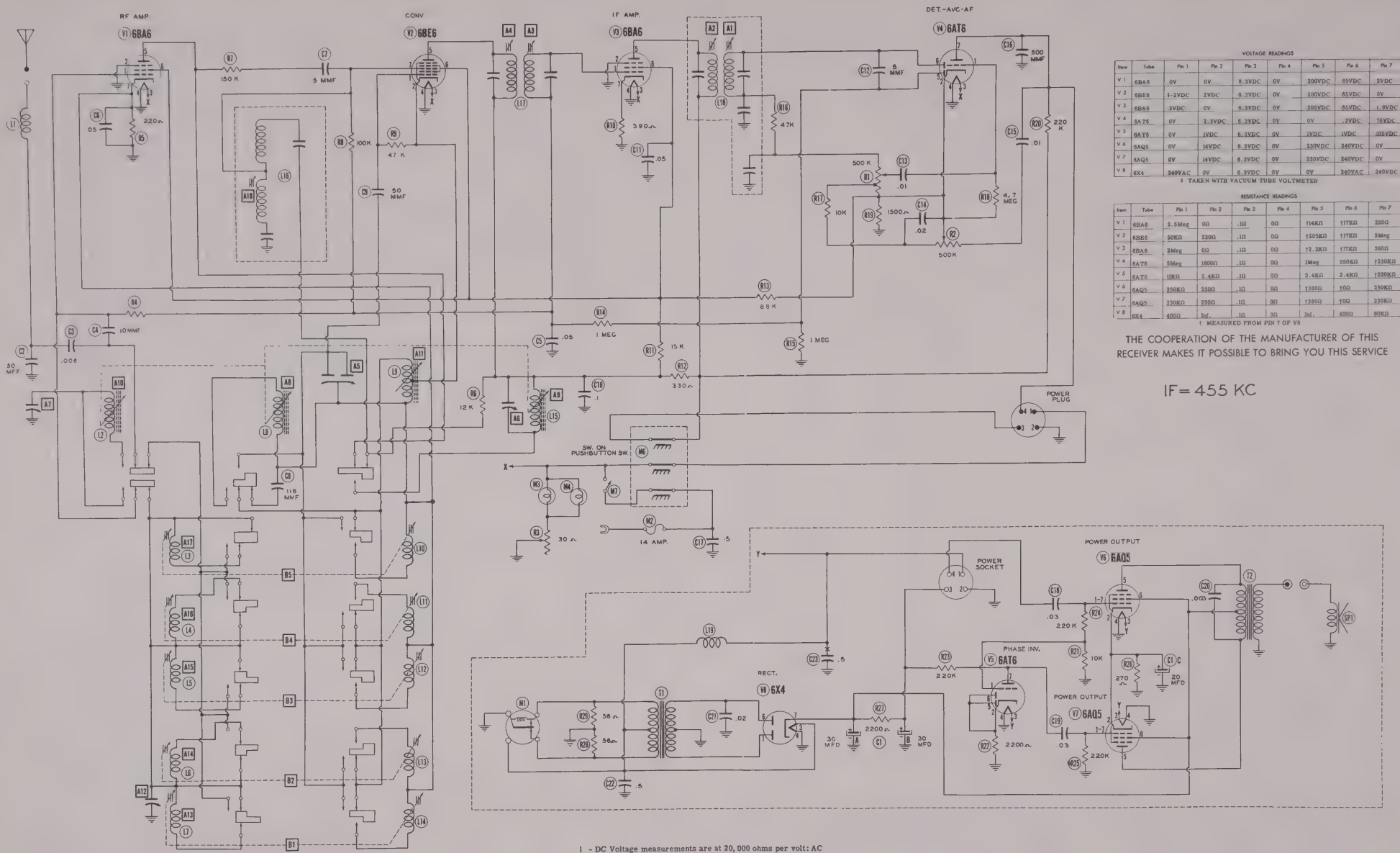
DIAL CORD DRIVE

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America


L3
R4
R6
L2
R3
L6
R9
R8
L5
R5
L12
L15
R16
R17
R18
R21
R22
R19
R20
R2
R23
L9
R12
L10
R7
R11
L11
R13
R10
R14
R26
R30
R15
R24
R27
R29
R28
R1
R25


C4
C16
C3
C5
C7
C10
C9
A11
A9
C29
C23
C22
A7
B
C25
C24
C
C34
C2
C1
C17
C12
M4
C13
C6
C11
C18
A4
C15
C14
C20
C19
A2
C21
C28
C31
C30
C32
C33
C27
A
C26



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6BA6	0V	0V	6.3VDC	0V	200VDC	65VDC	2VDC
V 2	6BE6	1-2VDC	2VDC	6.3VDC	0V	200VDC	65VDC	0V
V 3	6BA6	2VDC	0V	6.3VDC	0V	205VDC	65VDC	1.8VDC
V 4	6AT6	0V	3.3VDC	6.3VDC	0V	0V	.3VDC	70VDC
V 5	6AT6	0V	1VDC	6.3VDC	0V	1VDC	1VDC	105VDC
V 6	6AQ5	0V	14VDC	6.3VDC	0V	230VDC	240VDC	0V
V 7	6AQ5	0V	14VDC	6.3VDC	0V	230VDC	240VDC	0V
V 8	6X4	340VAC	0V	6.3VDC	0V	0V	340VAC	340VDC

‡ TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6BA6	2.5Meg	0Ω	.1Ω	0Ω	†14KΩ	†17KΩ	220Ω
V 2	6BE6	50KΩ	220Ω	.1Ω	0Ω	†205KΩ	†17KΩ	2Meg
V 3	6BA6	2Meg	0Ω	.1Ω	0Ω	†2.2KΩ	†17KΩ	390Ω
V 4	6AT6	5Meg	1600Ω	.1Ω	0Ω	1Meg	550KΩ	†230KΩ
V 5	6AT6	1MΩ	2.4KΩ	.1Ω	0Ω	2.4KΩ	2.4KΩ	†220KΩ
V 6	6AQ5	250KΩ	250Ω	.1Ω	0Ω	†380Ω	†0Ω	250KΩ
V 7	6AQ5	230KΩ	250Ω	.1Ω	0Ω	†360Ω	†0Ω	230KΩ
V 8	6X4	400Ω	Inf.	.1Ω	0Ω	Inf.	400Ω	60KΩ

† MEASURED FROM PIN 7 OF V8

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

IF = 455 KC

1 - DC Voltage measurements are at 20,000 ohms per volt: AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Battery voltage maintained at 6.3 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1951

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap fully closed and set pointer to last reference mark at low frequency end of dial.

AM ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignmart screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.005MFD	High side to Pin7(grid) of 6BE6, (V2). Low side to chassis.	455KC (400 ∿ Mod.)	AM (Center)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.		Loop	1650KC	"	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1500KC	"	1500KC	"	A6	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	.005MFD	High side to Pin 1 (grid) of 6BA6, (V3). Low side to chassis.	10.7MC (Unmod.)	FM (CCW)	Tuning gang fully open.	DC probe to Point Ⓐ. Common to chassis.	A7, A8, A9	Adjust for maximum deflection.
5.	"	High side to Pin 7 (grid) of 12AT7, (V1). Low side to chassis.	"	"	"	"	A10, A11	"
6.	"	"	"	"	"	DC probe to Point Ⓑ. Common to Point Ⓒ.	A12	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	.005MFD	High side to Pin 1 (grid) of 6BA6, (V3). Low side to chassis.	10.7MC (450KC SWP)	FM (CCW)	Point of non-interference	Vert. amp. to Point Ⓐ. Low side to chassis.	A7, A8, A9	Disconnect stabilizer capacitor C2. Adjust for maximum amplitude and symmetry as per figure 1.
5.	"	High side to Pin 7 (grid) of 12AT7, (V1). Low side to chassis.	"	"	"	Vert. amp. to Point Ⓑ. Low side to chassis.	A10	Reconnect capacitor C2. Adjust A10 so 10.7MC occurs at center of crossover lines as per figure 2. SLIGHTLY retouch A7 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	300Ω carbon resistor	High side thru 300Ω to ungrounded FM antenna terminal. Low side to chassis.	108MC	FM	108MC	DC probe to Point Ⓐ. Common to chassis.	A13	Adjust for maximum deflection.
8.	"	"	105MC	"	105MC	"	A14	"

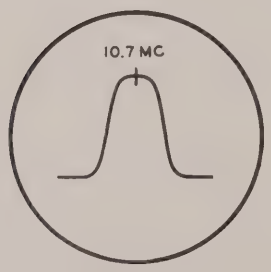


FIG. 1

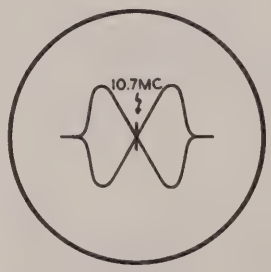


FIG. 2

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MAJESTIC PART No.	IRC PART No.	
R2	27Ω	1/2			Parasitic Suppressor
R3	470KΩ	1/2		BTS-470K	FM RF Amp. Grid
R4	4700Ω	1		BTA-4700	FM RF Amp. Plate Decoupling
R5	1000Ω	1/2		BTS-1000	FM RF Amp. Plate Decoupling
R6	82Ω	1/2		BTS-82	FM RF Amp. Cathode
R7	27Ω	1/2			Parasitic Suppressor
R8	4700Ω	1/2		BTS-4700	AM Converter Plate
R9	22KΩ	1/2		BTS-22K	AM Oscillator Grid
R10	5600Ω	1		BTA-5600	AM Oscillator Anode
R11	470KΩ	1/2		BTS-470K	AVC Network
R12	1Meg	1/2		BTS-1Meg	AVC Network
R13	47Ω	1/2			1st IF Amp. Cathode
R14	33KΩ	1		BTA-33K	1st IF Amp. Screen
R15	1000Ω	1/2		BTS-1000	1st IF Amp. Decoupling
R16	82Ω	1/2		BTS-82	2nd FM IF Amp. Cathode
R17	33KΩ	1		BTA-33K	2nd FM IF Amp. Screen
R18	1000Ω	1/2		BTS-1000	2nd FM IF Amp. Plate Decoupling
R19	8200Ω	1/2		BTS-8200	Ratio Det. Diode Load
R20	8200Ω	1/2		BTS-8200	Ratio Det. Diode Load
R21	220Ω	1/2		BTS-220	Balancing
R22	47KΩ	1/2		BTS-47K	De-emphasis
R23	1Meg	1/2		BTS-1Meg	AVC Network
R24	47KΩ	1/2		BTS-47K	Diode Filter
R25	15KΩ	1/2		BTS-15K	Tone Compensation
R26	3.3Meg	1/2		BTS-3.3Meg	AF Amp. Grid
R27	270KΩ	1		BTA-270K	AF Amp. Plate - See Note
R28	330KΩ	1/2		BTS-330K	Output Grid
R29	390Ω	1		BTA-390	Output Cathode
R30	5600Ω	1		BTA-5600	Decoupling

Note: Some models use 330KΩ resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	MAJESTIC PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC @ .68A	600VCT .096ADC	5VAC @ 2A	6.3VAC @ 2.1A	D9.248			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MAJESTIC PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	4.5KΩ	3.6Ω	400Ω	.5Ω	C9.241-3	A-3877 ①	A-3019 ①	R0-9 ①	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	V.C. IMP.	MAJESTIC PART No.	VIKING PART No.	QUAM PART No.	
SP1	PM	3.6Ω	C30.328	10J12	10A4A	
	CONE DIA.	V. C. DIA				
SP2	9 1/8"	1"				

PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	MAJESTIC PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.096A	220Ω	5 Henries	C9.255	C-1709 ①	C-2977 ①	R-885 ①	① Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES.,		REPLACEMENT DATA		NOTES
		PRI.	SEC.	MAJESTIC PART No.	MEISSNER PART No.	
L2	RF Choke	0Ω		B-1.535-2		
L3	RF Choke	1Ω		B-1.512		
L4	FM-RF Coil	0Ω		B-1.539		
L5	Fil. Choke	0Ω		B-1.501		
L6	Parasitic Suppressor	0Ω		B-1.536-1		Wound on 820Ω resistor
L7	FM Osc. Coil	0Ω		B-1.538		
L8	Loop Ant.	1.4Ω	.1Ω	D-1.540		
L9	RF Choke	.4Ω		B-1.535-1		
L10	Parasitic Suppressor	0Ω		B-1.536-2		Wound on 27Ω resistor
L11	AM Osc. Coil	5.9Ω		C-1.436-2		Tap .6Ω
L12	Fil. Choke	0Ω		B-1.501		
L13	1st AM IF	16Ω	16Ω	C-1.445-3		
L14	1st FM IF	.5Ω	.6Ω	C-1.436-2		
L15	Fil. Choke	0Ω		B-1.501		
L16	2nd AM IF	16Ω	16Ω	C-1.445-3		
L17	2nd FM IF	.7Ω	.7Ω	C-1.446-3		
L18	Ratio Det. Trans.	1.4Ω	.1Ω	C-1.524		Tap .3Ω (C-1.542-1 can be used)

PHONO CARTRIDGE and NEEDLE

ITEM No.	REPLACEMENT DATA							REMARKS
	MAJESTIC PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1		LQD-1J	"Q" Q-33			96-T	0-1 or S-1 and 0-3 or S-3	

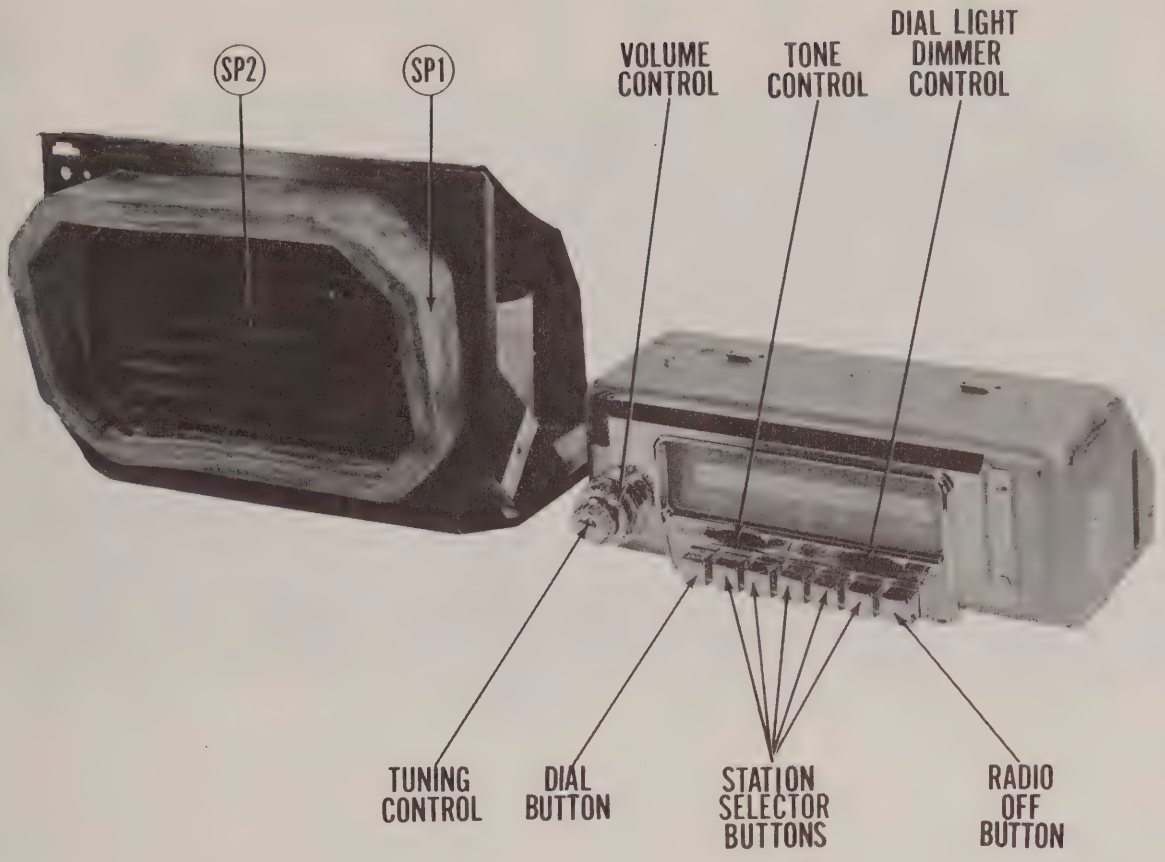
ASTATIC AND ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED.

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					MAJESTIC PART No.		
M2	Bayonet	6-8	.25	Blue			Type # 44
M3	Bayonet	6-8	.25	Blue			Type # 44

MISCELLANEOUS

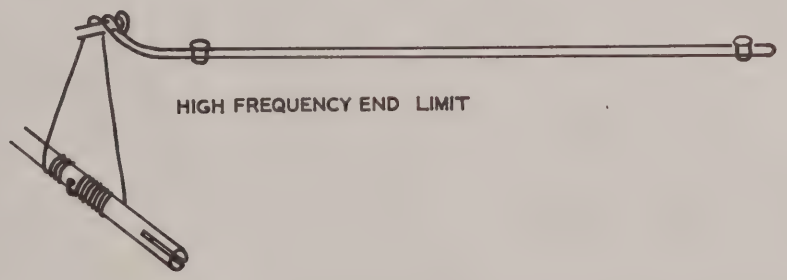
ITEM No.	PART NAME	MAJESTIC PART No.	NOTES
M4	Switch	C-11.227-1	AM-FM-Phono
M5	2 Gang Var. Cap	C-2.222	(28-538MMF, 24-206MMF)
A13	Trimmer	B-4.118	FM Osc. Adjustment



MOPAR
MODEL 814

MOPAR
MODEL 814

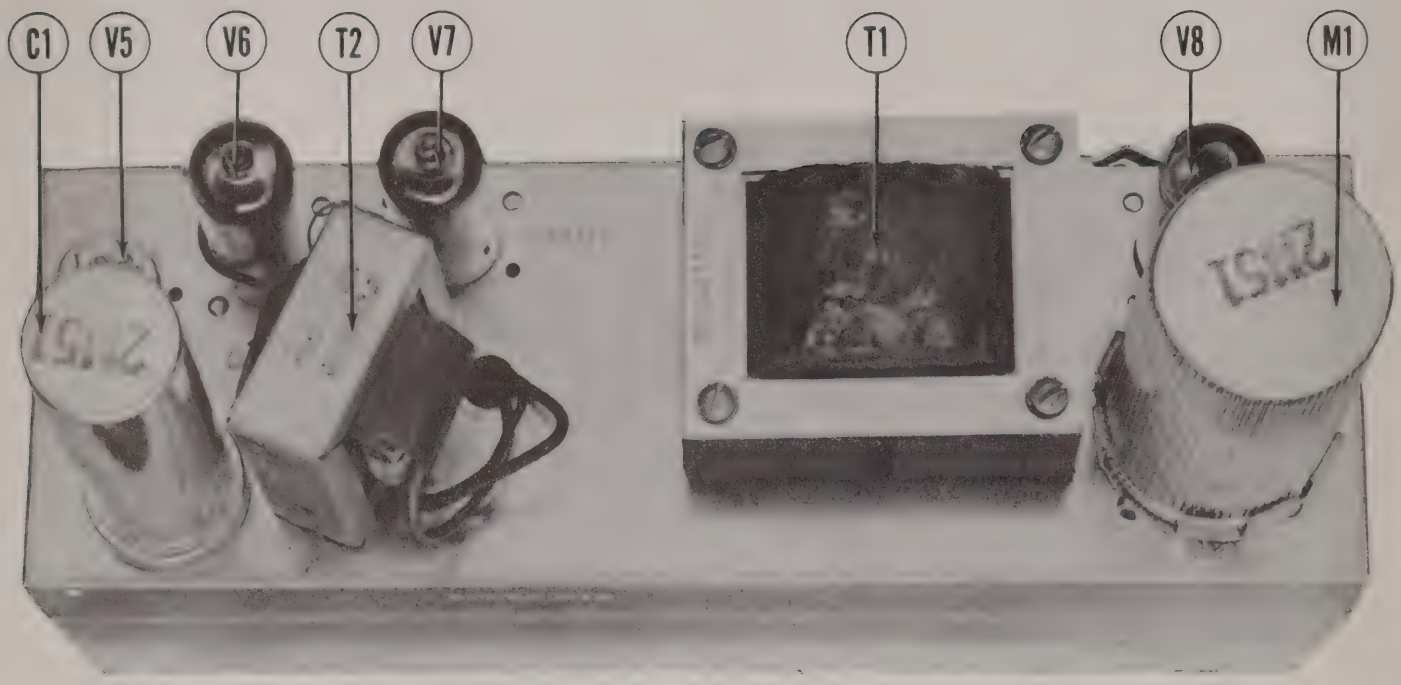
TRADE NAME	Mopar, Model 814
MANUFACTURER	Motorola Inc., 4545 Augusta Blvd., Chicago, Illinois
TYPE SET	Battery Operated Custom-Built Automotive (DeSoto S-15) Superheterodyne Receiver
TUBES (EIGHT)	Types 6BA6 RF Amp., 6BE6 Converter, 6BA6 IF Amp., 6AT6 Det.-AVC-AF, 6AT6 Phase Inv., (2) 6AQ5 Power Output, 6X4 Rectifier
POWER SUPPLY	6 Volt Storage Battery — RATING 7.2 Amp. @ 6.3 Volts DC
TUNING RANGE—BROADCAST	535-1605KC

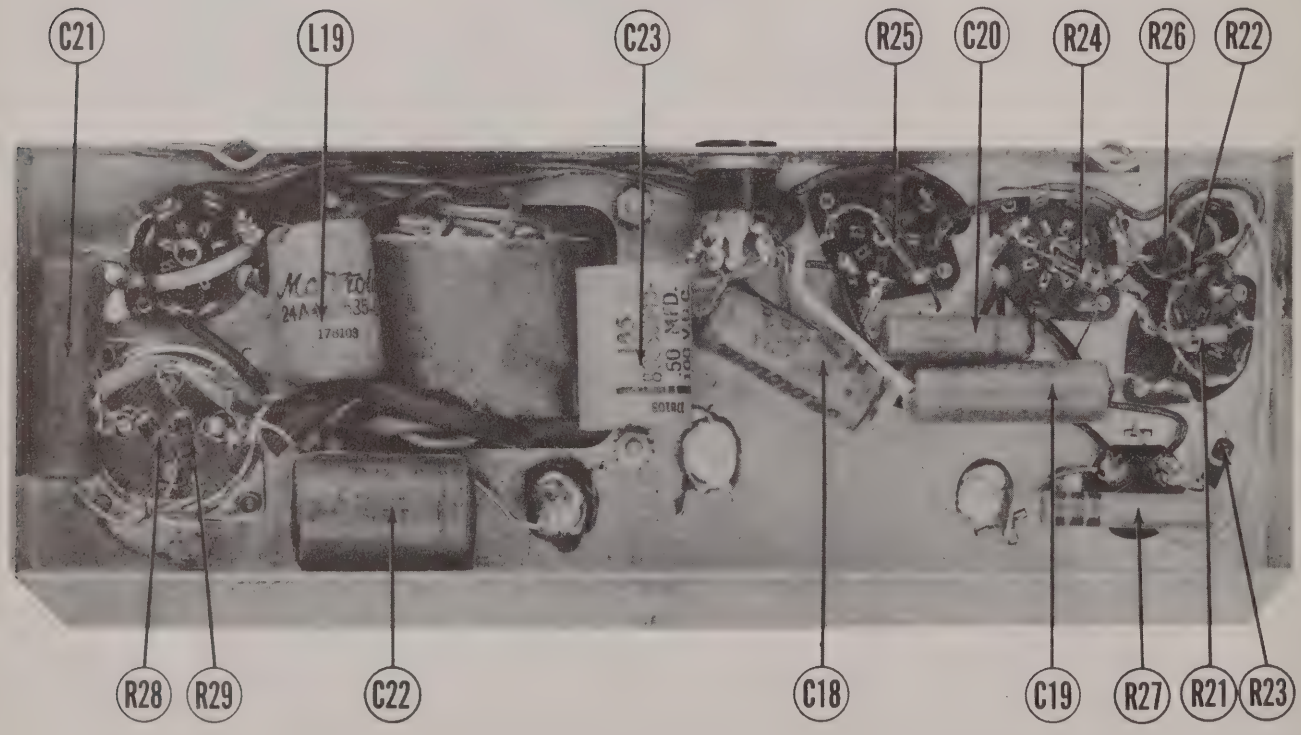


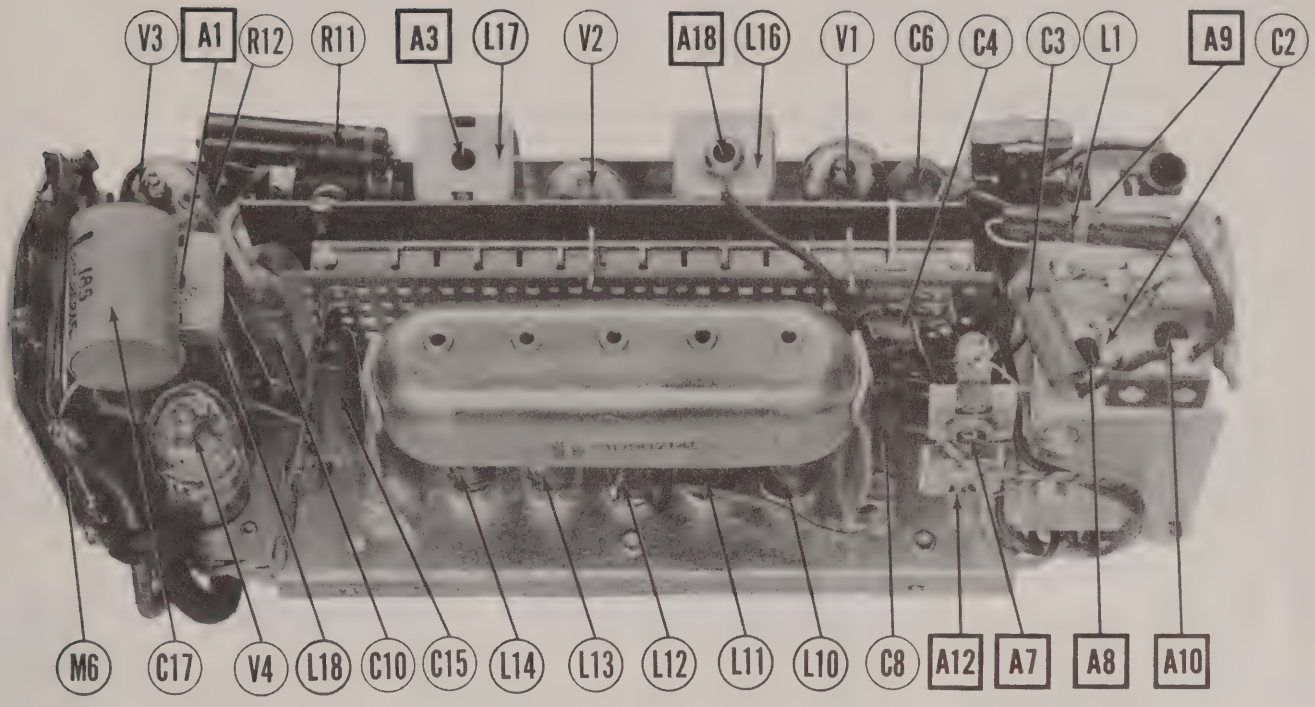
DIAL CORD DRIVE

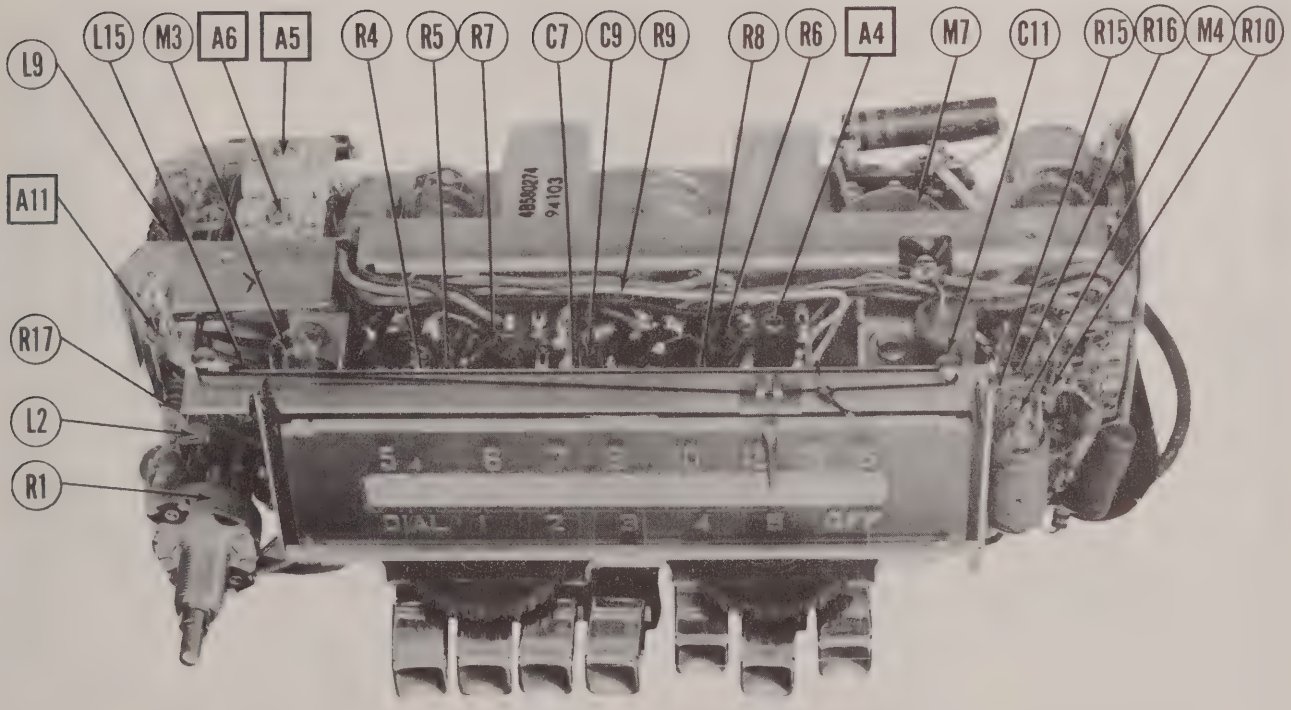
HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

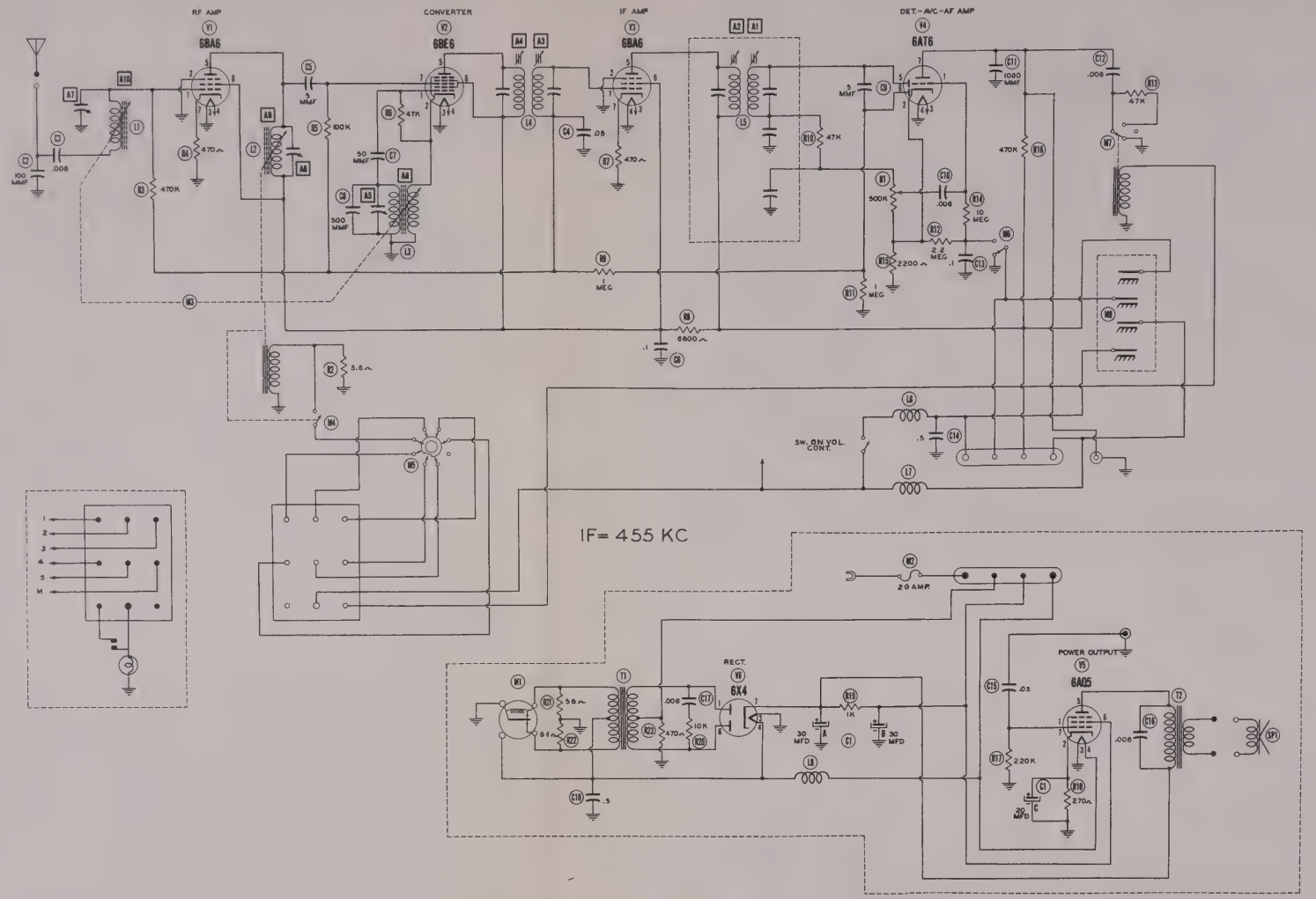
"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America


C1
V5
V6
T2
V7
T1
V8
M1


C21
L19
C23
R25
C20
R24
R26
R22
R28
R29
C22
C18
C19
R27
R21
R23


V3
A1
R12
R11
A3
L17
V2
A18
L16
V1
C6
C4
C3
L1
A9
C2
M6
C17
V4
L18
C10
C15
L14
L13
L12
L11
L10
C8
A12
A7
A8
A10


L15
M3
A6
A5
R4
R5
R7
C7
C9
R9
R8
R6
A4
M7
C11
R15
R16
M4
R10
L9
A11
R17
L2
R1



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6BA6	-.7VDC	0V	0V	5.8VDC	88VDC	80VDC	2.2VDC
V 2	6BE6	1-3.4VDC	0V	0V	5.8VDC	86VDC	80VDC	-2.8VDC
V 3	6BA6	-.4VDC	0V	5.8VDC	0V	115VDC	80VDC	1.8VDC
V 4	6AT6	0V	.6VDC	5.8VDC	0V	-5.2VDC	-3VDC	80VDC
V 5	6AQ5	0V	10.4VDC	0V	5.8VDC	115VDC	110VDC	0V
V 6	6X4	235VAC	0V	0V	5.4VDC	235VAC	235VAC	305VDC

‡ TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6BA6	2.5Meg	0Ω	0Ω	.5Ω	†7.8KΩ	†7.8KΩ	470Ω
V 2	6BE6	47KΩ	.5Ω	0Ω	.5Ω	†7.8KΩ	†7.8KΩ	2.1Meg
V 3	6BA6	2Meg	0Ω	.5Ω	0Ω	†1KΩ	†7.8KΩ	470KΩ
V 4	6AT6	12.1Meg	2.2KΩ	.5Ω	0Ω	250KΩ	1Meg	†470KΩ
V 5	6AQ5	220KΩ	270Ω	0Ω	.5Ω	†860Ω	†1KΩ	220KΩ
V 6	6X4	470Ω	.7Ω	0Ω	.5Ω	9KΩ	470Ω	50KΩ

† MEASURED FROM PIN 7 OF V6

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Battery voltage maintained at 6.3 volts for voltage readings.
5 - Nominal tolerance on componet values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1951

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

After alignment is completed, set generator to 1400KC, press the "dial" button, and manually tune in the generator signal. Set dial pointer to the 1400 calibration on the dial scale.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Press the "dial" pushbutton.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (Grid) of (V2). Low side to chassis.	455KC (400∿mod.)	High freq. end (cores fully out)	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	Fig. 1	High side thru dummy to antenna receptacle. Low side to chassis.	1605KC	High freq. end Check to see that cores project 1 1/8 ins. from cans.	"	A5, A6, A7	"
3.	"	"	1400KC	Set the core carriage plate 3/8in. in from coil shield plate, see fig. 2.	"	A8, A9, A10	"
	The following oscillator padder coil adjustment has been properly set at the factory. Unless components have been changed in the oscillator circuit, adjustment should not be attemped in the field. Front cover must be in place for this adjustment.						
4.	Fig. 1	High side thru dummy to ant. receptacle. Low side to chassis.	Turn gen. off.	600KC	Across voice coil.	A11	Adjust for maximum noise. If A11 must be changed more than $\frac{1}{2}$ turn from its original position, repeat steps 2, 3, and 4 until no more than $\frac{1}{2}$ turn is required. Repeat steps 2, 3, and 4 but eliminate setting of cores 1 1/8 ins. from cans.
5.	Fig. 1	High side thru dummy to ant. receptacle. Low side to chassis.	1400KC	Press pushbutton No. 5 and turn B1 to tune in gen signal.	Across voice coil.	A12	Adjust for maximum output. If pushbutton tracking nuts are not to be adjusted, skip steps 6 thru 11. If tracking nuts are to be adjusted skip this step.
	The following pushbutton tracking nut adjustments have been properly set at the factory. Unless components have been changed in the pushbutton assembly circuits, these adjustments should not be attempted in the field.						
6.	Fig. 1	High side thru dummy to ant. receptacle. Low side to chassis.	1605KC	Press pushbutton No. 5 and turn B1 to tune in gen. signal.	Across voice coil.	A12	Adjust for maximum output.
7.	"	"	1400KC	"	"	A13	Adjust for maximum output. Recheck antenna trimmer at 1605KC. If sensitivity increases when A12 is adjusted repeat steps 5 and 6.
8.	"	"	1020KC	Press pushbutton No. 4 and turn B2 to tune in gen. signal.	"	A14	Adjust for maximum output.
9.	"	"	"	Press pushbutton No. 3 and turn B3 to tune in gen. signal.	"	A15	"
10.	"	"	"	Press pushbutton No. 2 and turn B4 to tune in gen. signal.	"	A16	"
11.	"	"	600KC	Press pushbutton No. 1 and turn B5 to tune in gen. signal.	"	A17	"
12.	"	"	455KC	Set pushbutton No. 1 to 600KC as in step 10	"	A18	Adjust for MINIMUM output.

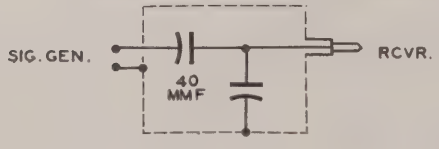


FIG. 1

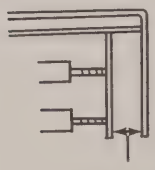


FIG. 2

PUSH BUTTON ADJUSTMENT

The frequency ranges of the push buttons are as followers:

Push button No. 1 535-1020KC
Push button No. 2 612-1200KC
Push button No. 3 700-1410 KC
Push button No. 4 740-1480KC
Push button No. 5 840-1600KC

Press the "dial" button and carefully tune in manually the desired station, (make sure the station is within the frequency range of the selected push button).

Pull off the crome push button cap.

Press the push button in and turn the knurled metal button, (B1 thru B5), until the station selected is properly tuned in.

Check the push button setting by alternately pressing the "dial" button and the button being adjusted. If there is any change between the buttons, repeat the entire procedure.

Repeat the above procedure for each button, checking each time to make sure the desired station is within the selected buttons' tuning range.

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MOTOROLA PART No.	IRC PART No.	
R7	150KΩ	½	6R6182	BTS-150K	RF Coupling
R8	100KΩ	½	6R6075	BTS-100K	Conv. Grid
R9	47KΩ	½	6R6056	BTS-47K	Osc. Grid
R10	390Ω	½	6R5554	BTS-390	IF Amp. Cathode
R11	15KΩ	2	6R5732	BTB-15K	Decoupling
R12	330Ω	½	6R6010	BTS-330	Decoupling
R13	68KΩ	½	6R6001	BTS-68K	Delayed AVC
R14	1Meg	½	6R6004	BTS-1Meg	AVC Network
R15	1Meg	½	6R6004	BTS-1Meg	Diode Load
R16	47KΩ	½	6R6056	BTS-47K	Diode Filter
R17	10KΩ	½	6R6054	BTS-10K	Tone Compensation
R18	4.7Meg	½	6R2122	BTS-4.7Meg	AF Amp. Grid
R19	1500Ω	½	6R6161	BTS-1500	AF Amp. Cathode
R20	220KΩ	½	6R6015	BTS-220K	AF Amp. Plate
R21	10KΩ	½	6R6054	BTS-10K	Phase Inv. Grid
R22	2200Ω	½	6R6069	BTS-2200	Phase Inv. Cathode
R23	220KΩ	½	6R6407	BTS-220K	Phase Inv. Plate
R24	220KΩ	½	6R6407	BTS-220K	Output Grid
R25	220KΩ	½	6R6407	BTS-220K	Output Grid
R26	270Ω	1	6R6336	BTA-270	Output Cathode
R27	2200Ω	2	6R476130	BTB-2200	Filter
R28	56	½	6R5614		Hash Suppressor
R29	56	½	6R5614		Hash Suppressor

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	6.3V ② 4A	480VCT .050ADC			25C501644			VT-2

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	7.3KΩ CT	3Ω	740Ω CT	.4Ω	25B501722	A-3850 ①	A-2900 ①		① Bend mounting tabs down file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	V. C. IMP.	MOTOROLA PART No.	JENSEN PART No.	QUAM PART No.	
SP1	PM	3Ω	50C502337 50C501778 50C502190	ST810 Model P69-V	69A2	
	CONE DIA.	V. C. DIA.				
SP2	6"X9"	1"				

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	MOTOROLA PART No.	MEISSNER PART No.	IRC PART No.	
L1	Ant. Hash Coil	1.5Ω		24B580540		CL-1	2.7 Microhenries
L2	Ant. Coil	0Ω		24A510162			(Manual Control)
L3	Ant. Coil	0Ω		*			(Push Button #1, 535-1020KC)
L4	Ant. Coil	0Ω		*			(Push Button #2, 610-1200KC)
L5	Ant. Coil	0Ω		*			(Push Button #3, 700-1410KC)
L6	Ant. Coil	0Ω		*			(Push Button #4, 740-1480KC)
L7	Ant. Coil	0Ω		*			(Push Button #5, 840-1600KC)
L8	RF Coil	3Ω		24K510163			(Manual Control)
L9	Osc. Padder Coil	6Ω		24K501921			(Manual Control)
L10	Osc. Coil	3Ω		*			(Push Button #1, 535-1020KC, Blue Dot)
L11	Osc. Coil	2.8Ω		*			(Push Button #2, 610-1200KC, Red Dot)
L12	Osc. Coil	2.5Ω		*			(Push Button #3, 700-1410KC, Brown Dot)
L13	Osc. Coil	2.3Ω		*			(Push Button #4, 740-1480KC, Yellow Dot)
L14	Osc. Coil	1.5Ω		*			(Push Button #5, 840-1600KC, Green Dot)
L15	Osc. Coil	14Ω		24A510164			(Manual Control)
L16	IF Trap	59Ω	25Ω	24B580274			
L17	1st. IF	19Ω	19Ω	24B485553			Some models use 24K502819
L18	2nd. IF	17Ω	17Ω	24K485555			
L19	Hash Choke	0Ω		24A472535			

* Part of Tuner Pushbutton assembly Part # 51K510171

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA			INSTALLATION NOTES
				MOTOROLA PART No.	CORNELL-DUBILIER PART No.	RADIART PART No.	
M1	INT	6.3V	115∿	48B3333	5342	5342	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			MOTOROLA PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M2	SFE	14A	65K12894	9K502087 ① 9K502241 ①	307014	155014A	① Includes fuse

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					MOTOROLA PART No.		
M3	Bayonet	6-8	.15	Brown	65X11854		Type #47
M4	Bayonet	6-8	.15	Brown	65X11854		Type #47

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M5	Tuner Unit	51D502140	
M6	Spark Plate	1A501755	
A5	Dual Trimmer	20A501888	Osc. Adj.
A6			RF Adj.
A7	Trimmer	20A501889	Ant. Adj.

MOTOROLA
MODEL 701

TRADE NAME	Motorola, Model 701
MANUFACTURER	Motorola Inc., 4545 Augusta Blvd., Chicago 51, Illinois
TYPE SET	Battery Operated Universal Automotive Superheterodyne Receiver
TUBES(SIX)	Types 6BA6 RF Amp., 6BE6 .Converter, 6BA6 IF Amp., 6AT6 Det.-AVC-AF, 6AQ5 Power Output, 6X4 Rectifier
POWER SUPPLY	6 Volt Storage Battery — RATING 6 Amp. @ 6.3 Volts DC
TUNING RANGE—BROADCAST	535-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (Grid) of 6BE6 (V2). Low side to chassis	455KC (400∿ mod)	Tuning cores fully out.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	Fig. 1	High side thru dummy to ant. receptacle. Low side to chassis.	1610KC	Tuning cores fully out. Make sure the tuning unit is on manual Check to see that cores project 1 1/8 ins. out of cans.	"	A5, A6, A7	"
3.	"	"	1425KC	Turn tuning control until tuner carriage plate is exactly 1 43/64 ins. from coil chield plate.	"	A8, A9, A10	"

After set is installed, fully extend antenna and tune in a weak station near 1400KC. Adjust A7 for maximum volume.

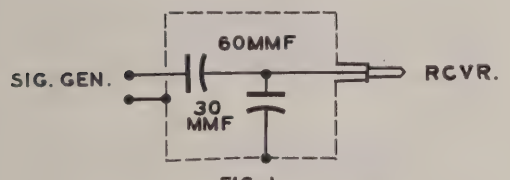


FIG. 1

PUSHBUTTON ADJUSTMENTS

Since the pushbuttons are mechanical, any button may be adjusted to any station within the receiver's tuning range. Press the "M" button and carefully tune in the desired station manually. Press the button to be set and wait for the tuner to complete it's cycle (clicking stops). Press the tuner reset button inward until a click is heard. Adjust the station set-up knob until the previously selected station is heard. Carefully adjust for loudest and clearest signal. Check the button setting by pressing the "M" button and then the station button. There should be no difference in volume or clarity between the two buttons. Repeat the above procedure for each button.

HOWARD W. SAMS & CO., INC. • Indianapolis 1, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	RF Amplifier	6BA6	6BA6	7BK	
V2	Converter	6BE6	6BE6	7CH	
V3	IF Amplifier	6BA6	6BA6	7BK	
V4	Det.-AVC-AF	6AT6	6AT6	7BT	
V5	Power Output	6AQ5	6AQ5	7BZ	
V6	Rectifier	6X4	6X4	5BS	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	30	350	23A473015	AF64H4A		UP335-330C		TVL-3620	■ Filter
B	30	300							▲ Filter
C	20	25							Output Cathode
C2	100		21B77562	SI100	D6-101	5W5T1	GP1K-101	19C1	Fixed Trimmer
C3	.006	100	8A4529		D6-562	PTE6D6	GP2-333-602	6TM-D6	RF Coupling
C4	.05	100	8A13514	P288-05	DF-503	PTE4S5		2TM-S5	AVC Filter
C5	5		21K70720	SI5	TCZ-4.7	5W5V5	GP1K-050	MS-55	RF Coupling
C6	.1	400	8R13166	P488-1	DF-104	PTE4P1		4TM-P1	Decoupling
C7	50	500	21K74661	1468-00005	D6-500	5W5Q5	GP1K-500	1FM-45	Osc. Grid Cap.
C8	500		21K592327						Fixed Trimmer
C9	5		21K70720	SI5	TCZ-4.7	5W5V5	GP1K-050	MS-55	IF Coupling
C10	.006	100	8A4529	P688-006	D6-562	PTE6D6	GP2-333-602	6TM-D6	Audio Coupling
C11	1000	500	21R6638	1468-001	D6-102	1W5D1	GP2L-102	1FM-21	AF Amp. Plate
C12	.006	600	8K71910	P688-006	D6-562	PTE6D6	GP2-333-602	6TM-D6	Tone Comp.
C13	.1	200	8R472035	P288-1	DF-104	PTE4P1		2TM-P1	Bias Filter
C14	.5	100	8K17028	P185-5				68P20	Hash Filter
C15	.03	400	8R71911	P688-03		PTE6S3		6TM-S3	Audio Coupling
C16	.006	400	8K71910	P688-006	D6-562	PTE6D6	GP2-333-602	6TM-D6	Output Plate
C17	.006	1600	8K12840	P1688-006		PTE16D6		MB-D6	Buffer
C18	.5	100	8K17028	P185-5				68P2	Hash Filter

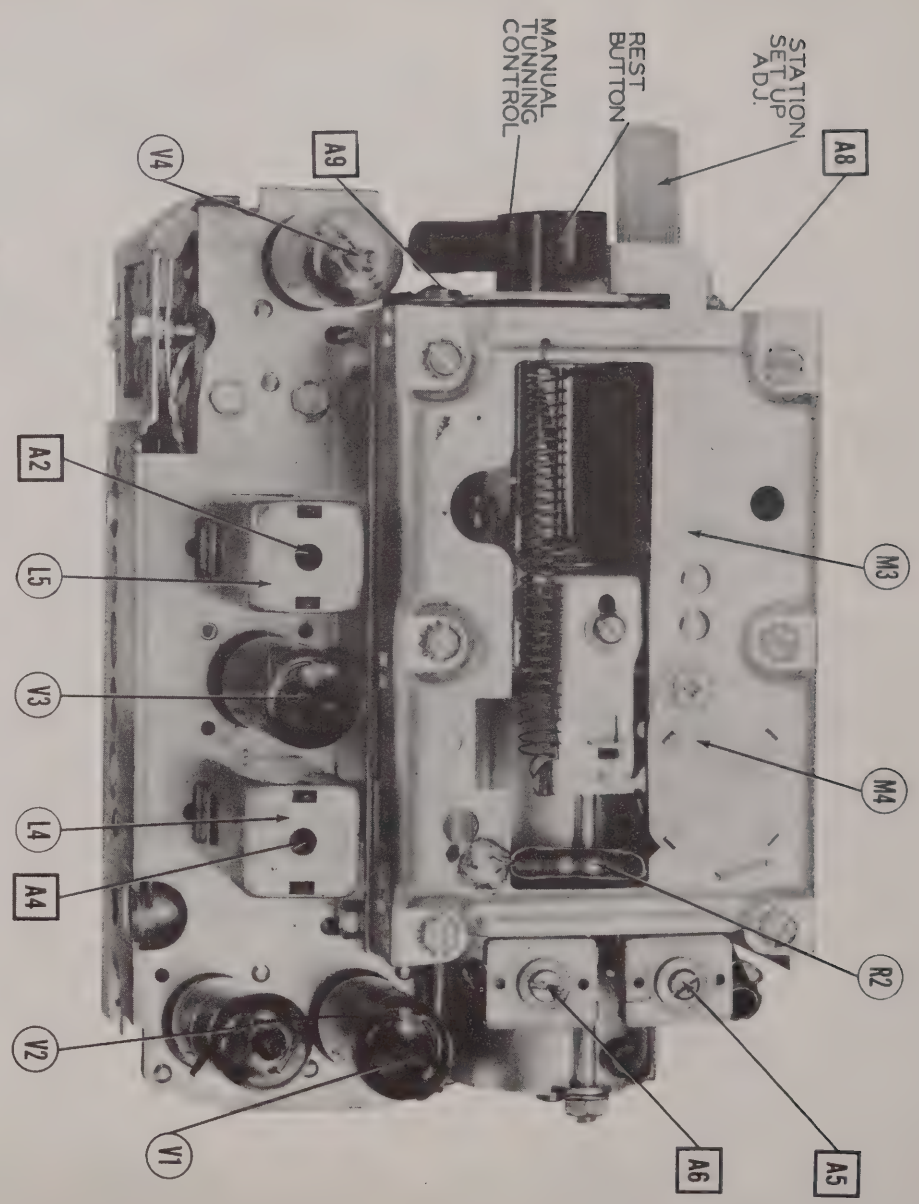
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1	500KΩ	½					Volume Control and SW

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	IRC PART No.	IDENTIFICATION CODES
R2	5.6Ω	1	6R488139	BW-1-5.6	Solenoid Shunt - Wire Wound
R3	470KΩ	½	6R6032	BTS-470K	RF Amp. Grid
R4	470Ω	½	6R6090	BTS-470	RF Amp. Cathode
R5	100KΩ	½	6R6075	BTS-100K	Conv. Grid
R6	47KΩ	½	6R6056	BTS-47K	Osc. Grid
R7	470Ω	½	6R6090	BTS-470	IF Amp. Cathode
R8	6800Ω	2	6R6287	BTB-6800	Decoupling
R9	1Meg	½	6R6004	BTS-1Meg	AVC Network
R10	47KΩ	½	6R6056	BTS-47K	Diode Filter
R11	1Meg	½	6R6004	BTS-1Meg	Diode Load
R12	2.2Meg	½	6R3927	BTS-2.2Meg	Tone Compensation
R13	47KΩ	½	6R6056	BTS-47K	Tone Compensation
R14	10Meg	½	6R2109	BTS-10Meg	AF Amp. Grid
R15	2200Ω	½	6R6290	BTS-2200	AF Amp. Cathode
R16	470KΩ	½	6R6032	BTS-470K	AF Amp. Plate
R17	220KΩ	½	6R6015	BTS-220K	Output Grid
R18	270Ω	1	6R6336	BTA-270	Output Cathode
R19	1000Ω	2	6R6184	BTB-1000	Filter
R20	10KΩ	½	6R6054	BTS-10K	Buffer
R21	56Ω	½	6R5614		Hash Suppressor
R22	56Ω	½	6R5614		Hash Suppressor
R23	470Ω	½	6R3949	BTS-470	Bias Network

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	6.3V ② 3.6A	460VCT .055ADC			25K590650		P-3068	VT-1 ①

① Drill new mounting holes.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	6.8KΩ	3.6Ω	660Ω	.7Ω	25B50330	A-3878②	A-3019	R0-9 ②	② Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			MOTOROLA PART No.	JENSEN PART No.	QUAM PART No.	
SP1	FIELD	V. C. IMP.	50K502269 or 50B502802	ST108 Model P6-X	6A15	
	PM	3.6Ω				
	CONE DIA.	V. C. DIA.				
SP2	5 7/8"	9/16"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	MOTOROLA PART No.	MEISSNER PART No.
L1	Ant. Coil	13Ω		24B71881	
L2	RF Coil	13Ω	.8Ω	24B71881	
L3	Osc. Coil	3.4		24B592153	
L4	1st. IF Coil	20Ω	20Ω	24B485553	
L5	2nd. IF Coil	19Ω	19Ω	24B485555	
L6	RF Choke	0Ω		24K592269	
L7	RF Choke	0Ω		24K592269	
L8	Hash Choke	.1Ω		24A472535	

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA			INSTALLATION NOTES
				MOTOROLA PART No.	CORNELL-DUBILIER PART No.	RADIART PART No.	
M1	INT	6.3V	115v	48B3333	5342	5342	

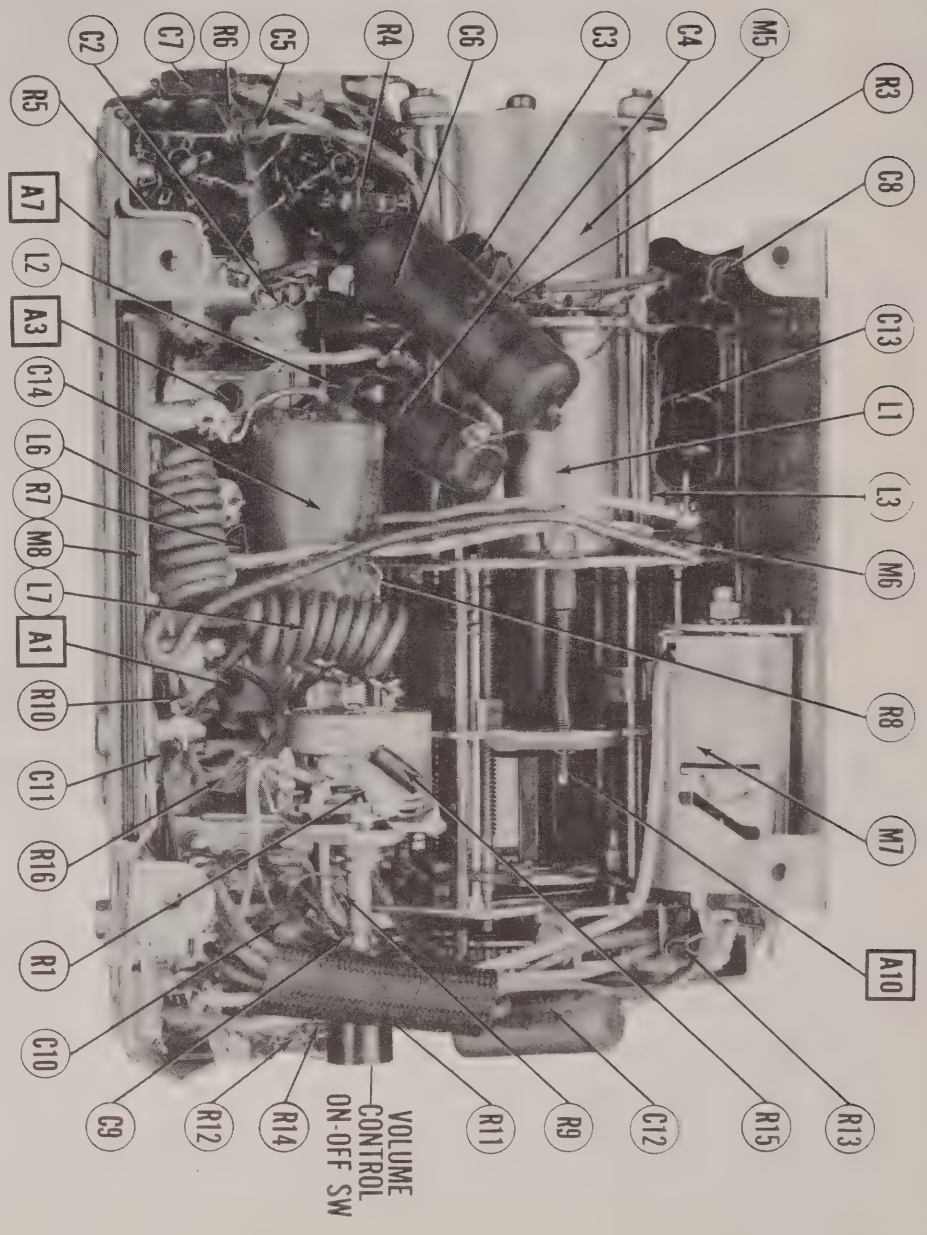
FUSES

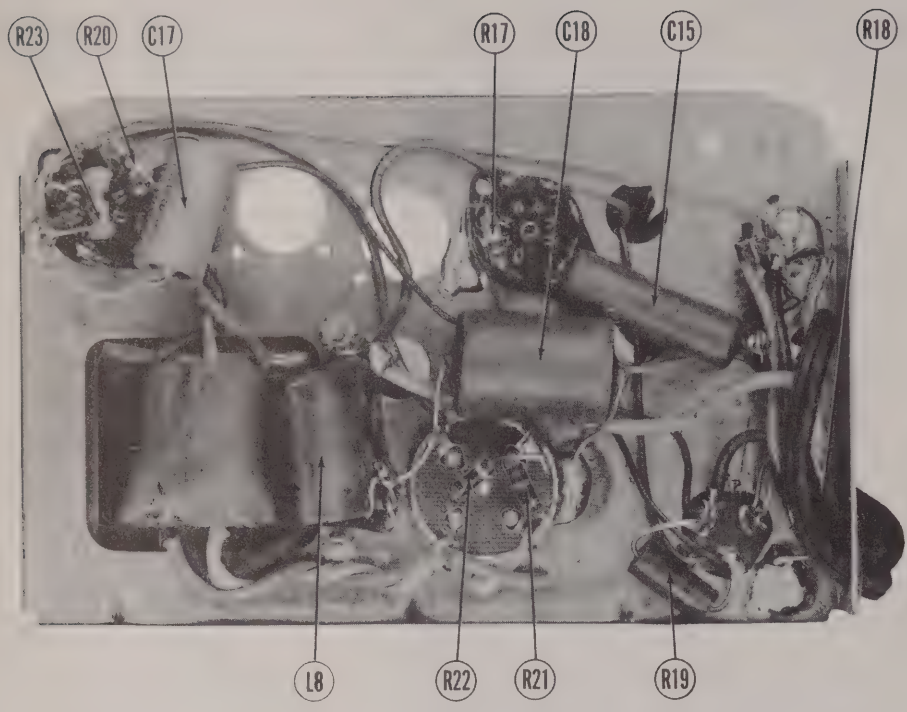
ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			MOTOROLA PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M2	SFE	20A	65K4637	9K592646 ③	307020	155020A	③Includes fuse

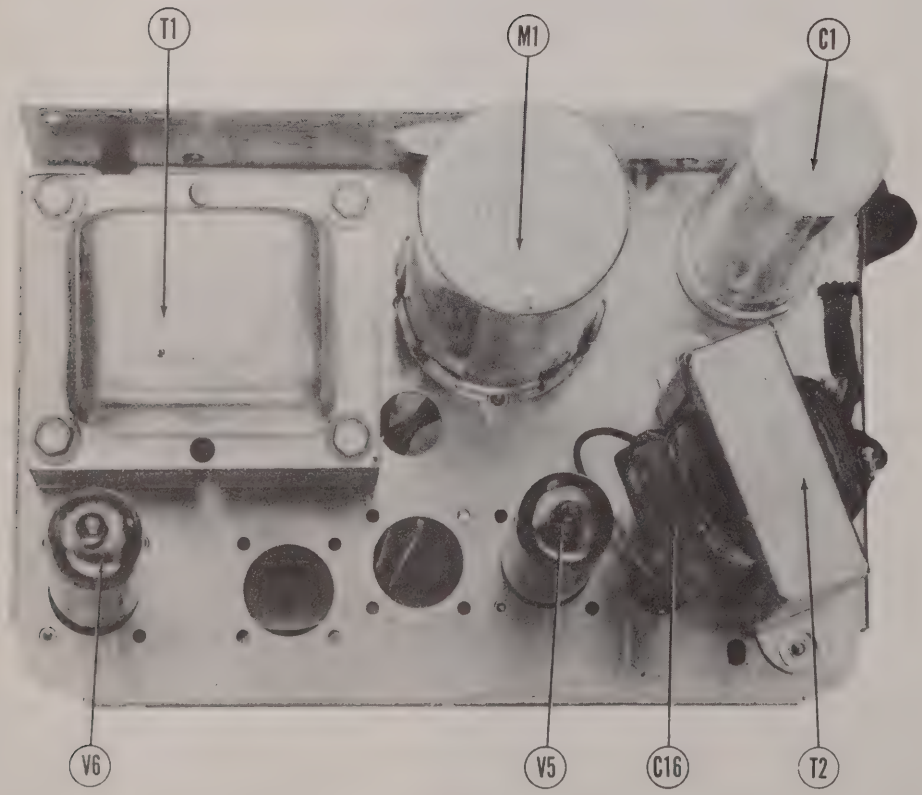
MISCELLANEOUS

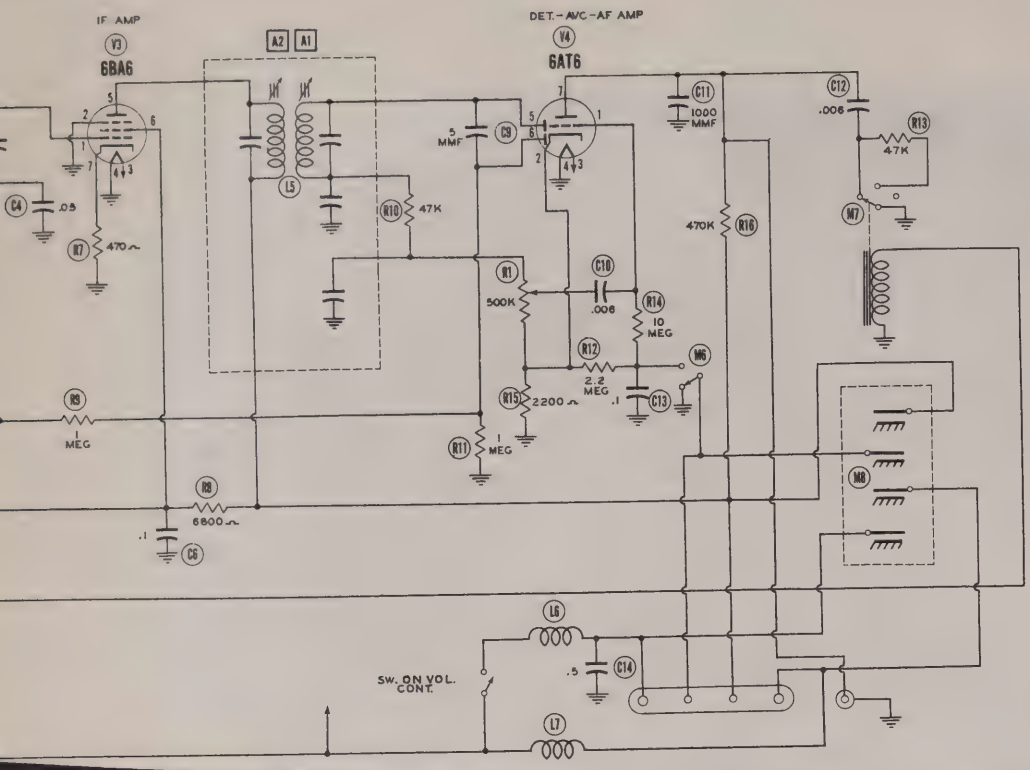
ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M3	Tuner Unit	1X592280	
M4	Switch	1B70944	Solenoid
M5	Switch	40B70952	Selector
M6	Switch	40A472644	Mute
M7	Switch	1X592220	Tone Relay
M8	Spark Plate Assby	1B592133	
A5	Trimmer	20K472612	Osc. Adj.
A6	Trimmer	20K481527	RF Adj.
A7	Trimmer	20A592135	Ant. Adj.

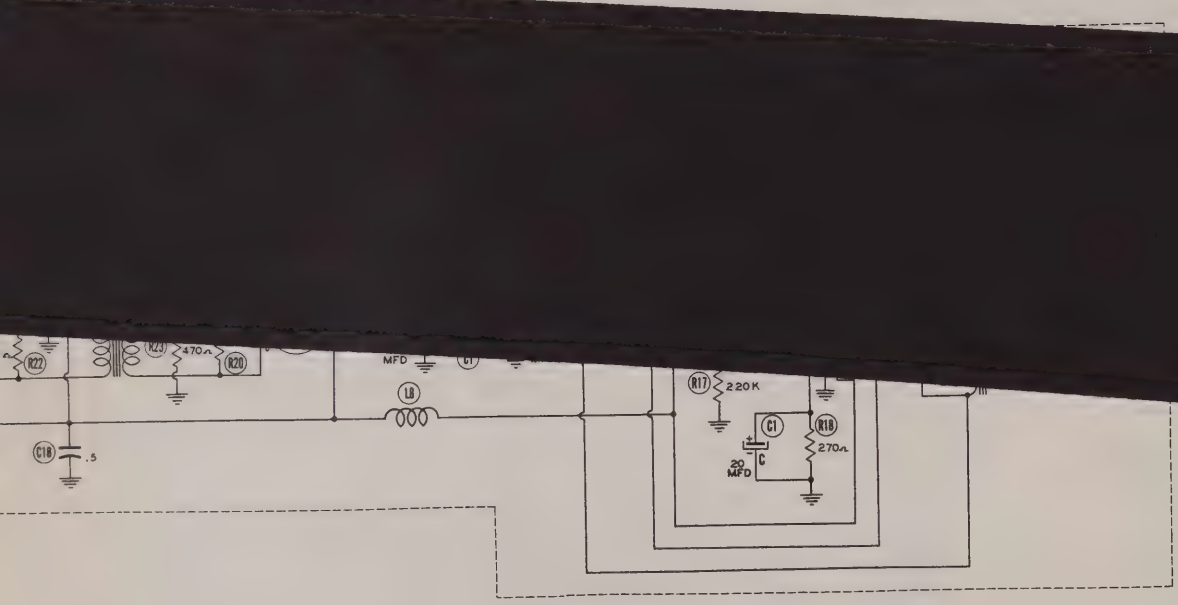
CHASSIS—BOTTOM VIEW




R23
R20
C17
R17
C18
C15
R18
L8
R22
R21
R19


T1
M1
C1
V6
V5
C16
T2





Pin 5	Pin 6	Pin 7
0VDC	80VDC	2.2VDC
5VDC	80VDC	-2.2VDC
5VDC	90VDC	1.8VDC
6.2VDC	-2VDC	60VDC
5VDC	190VDC	0V
35VAC	235VAC	205VDC

ER

RESISTANCE READINGS

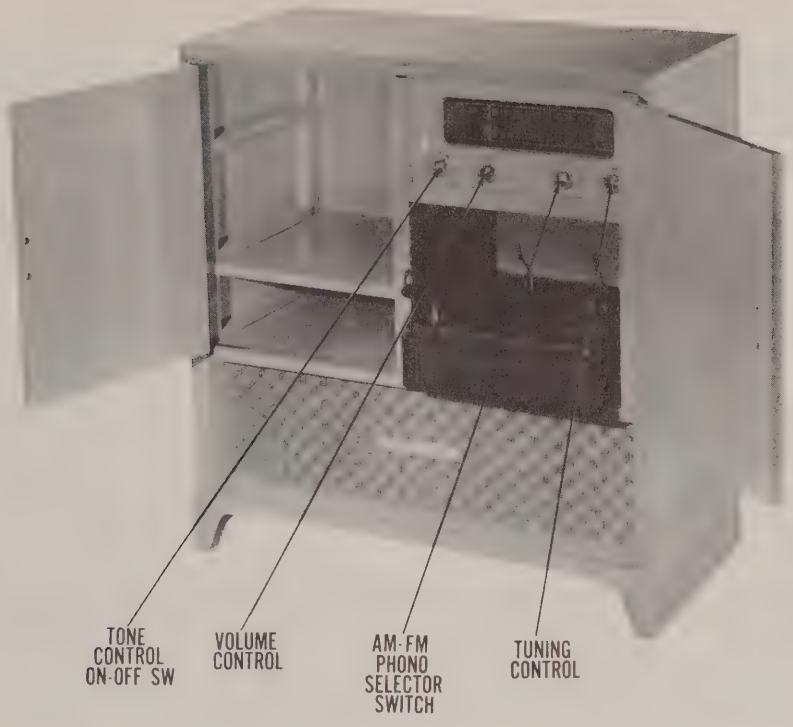
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6BA6	2.5Meg	0Ω	0Ω	.5Ω	†7.8KΩ	†7.8KΩ	470Ω
V 2	6BE6	47KΩ	.8Ω	0Ω	.5Ω	†7.8KΩ	†7.8KΩ	2.1Meg
V 3	6BA6	2Meg	0Ω	.5Ω	0Ω	†1KΩ	†7.8KΩ	470KΩ
V 4	6AT6	13.1Meg	2.2KΩ	.5Ω	0Ω	550KΩ	1Meg	†470KΩ
V 5	6AQ5	220KΩ	270Ω	0Ω	.5Ω	†660Ω	†1KΩ	220KΩ
V 6	6X4	470Ω	.7Ω	0Ω	.5Ω	9KΩ	470Ω	50KΩ

† MEASURED FROM PIN 7 OF V6

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

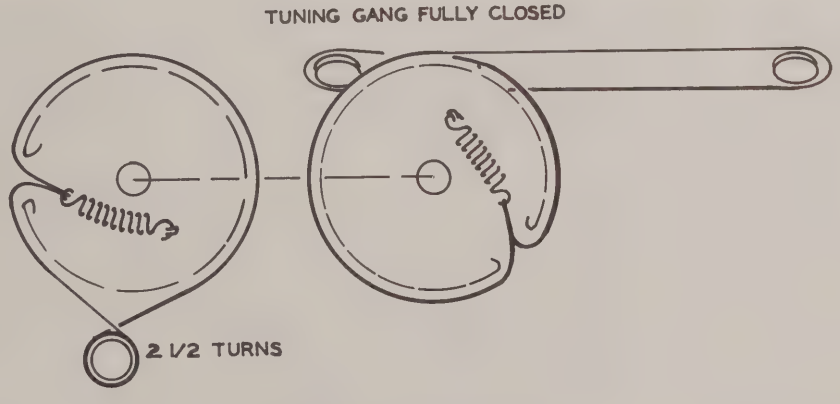
DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
Socket connections are shown as bottom views.
Measured values are from socket pin to common negative.
Battery voltage maintained at 6.3 volts for voltage readings.
Nominal tolerance on componet values makes possible a variation of ± 15% in voltage and resistance readings.
Volume control at maximum, no signal applied for voltage measurements.

PHILCO MODELS
51-1733, 51-1733 (L), 51-1734



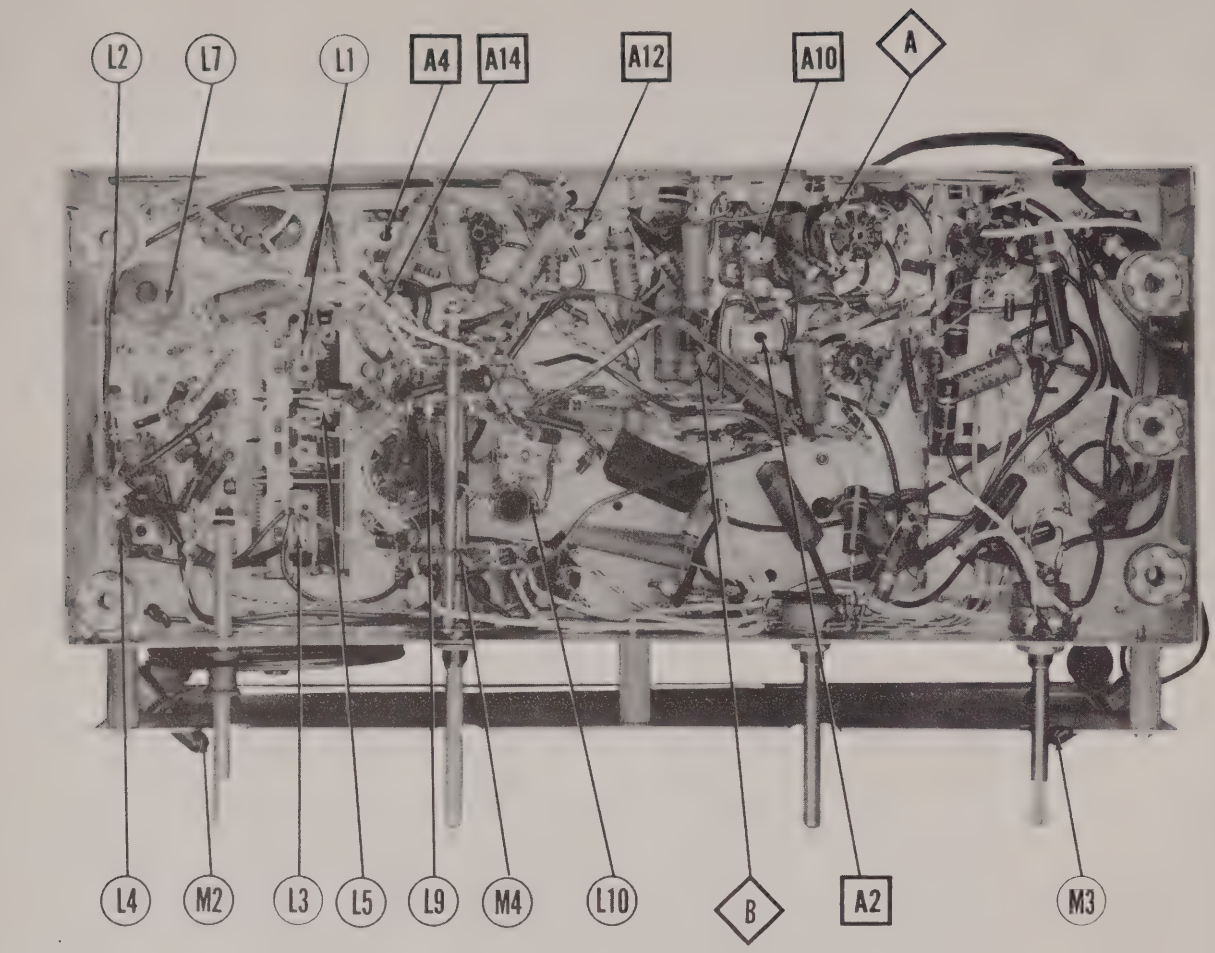
TRADE NAME	Philco, Models 51-1733, 51-1733 (L), 51-1734
MANUFACTURER	Philco Corp., Tioga & "C" Sts., Philadelphia, Pennsylvania.
TYPE SET	AC Operated Combination Phono-Radio, AM-FM Superheterodyne Receiver with Loop Antenna
TUBES (EIGHT)	Types 6BA6 RF Amp., 7F8 Converter - Phono Pre-Amp., 6BA6 1st. IF Amp., 6AU6 2nd. IF Amp., 6BC7 Ratio DET.-AVC, 6AV6 AM DET.-AVC-AF, 6Y6G Power Output, 5AZ4 Rectifier
POWER SUPPLY	110-120 Volts AC — RATING .77 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1630KC — FREQ. MOD. 88-108MC

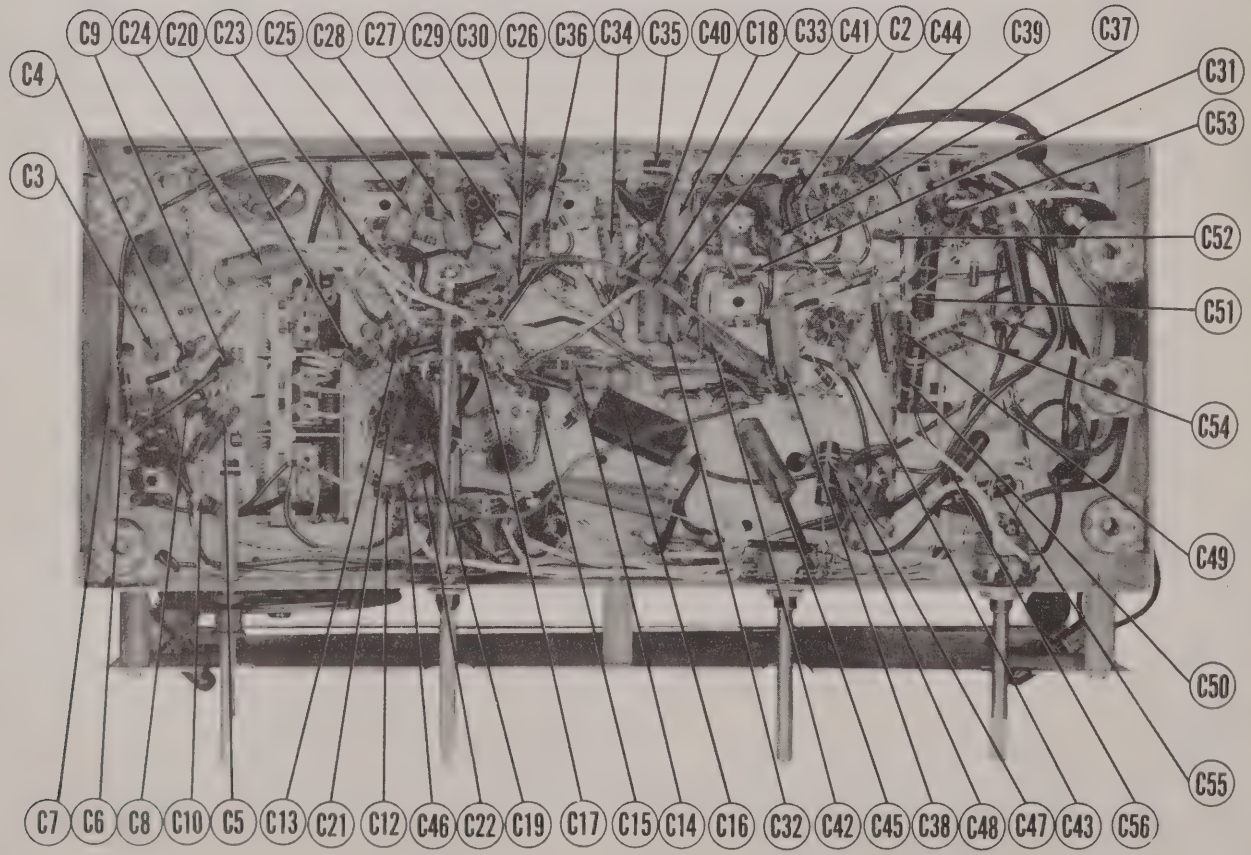
RECORD CHANGER -- PHILCO MODEL M-22

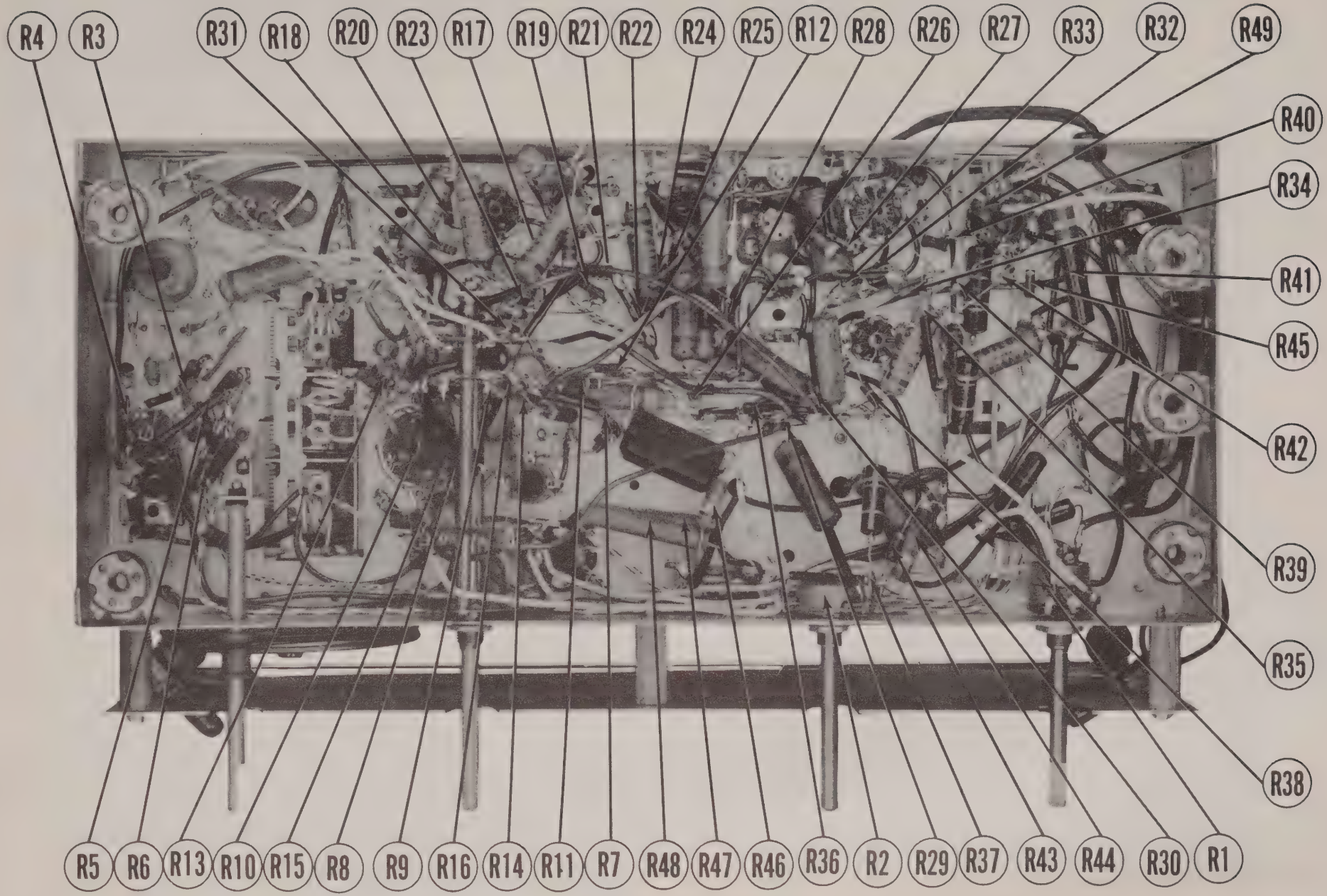


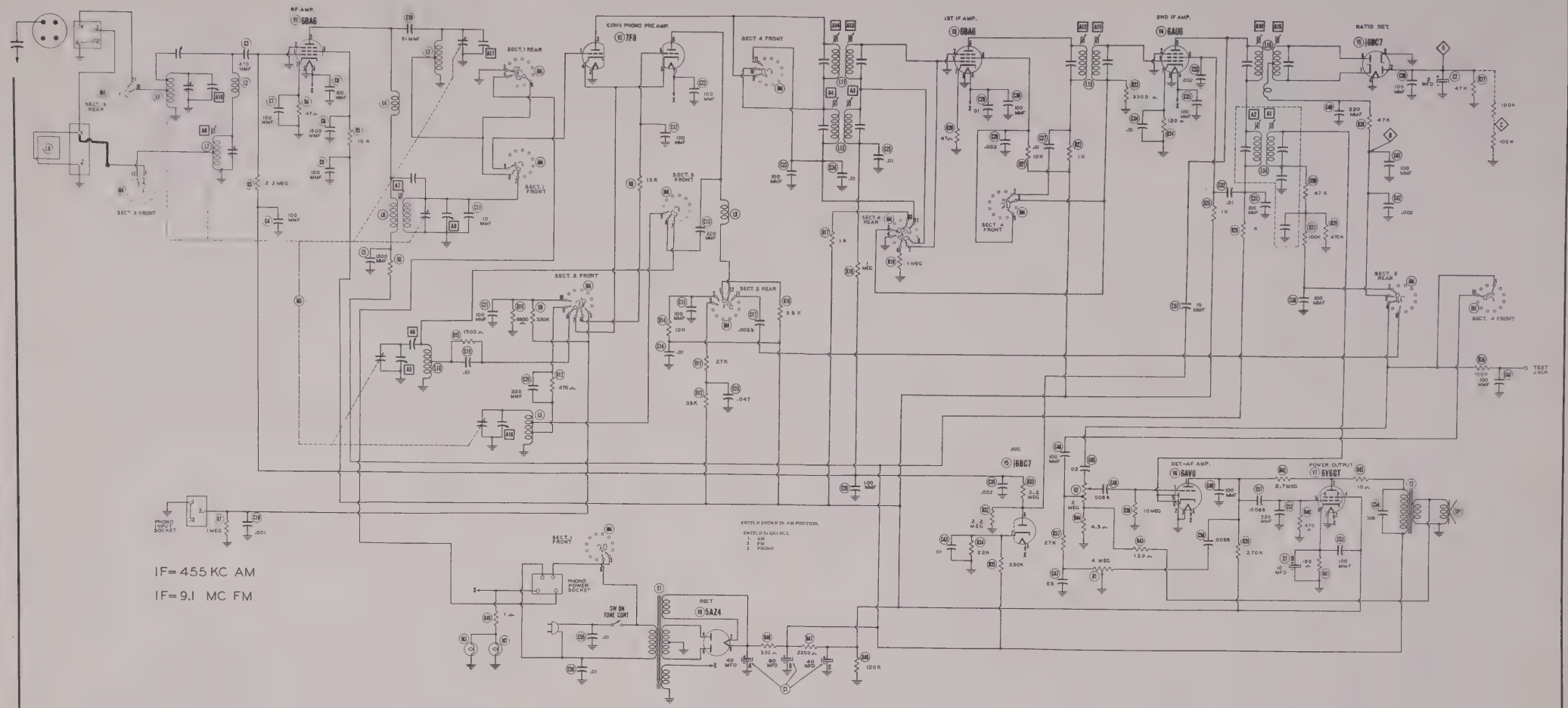
DIAL CORD DRIVE

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America


L2
L7
L1
A4
A14
A12
A10
A
L4
M2
L3
L5
L9
M4
L10
B
A2
M3


C9
C24
C20
C23
C25
C28
C27
C29
C30
C26
C36
C34
C35
C40
C18
C33
C41
C2
C44
C39
C37
C4
C31
C3
C53
C52
C51
C54
C49
C50
C55
C7
C6
C8
C10
C5
C13
C21
C12
C46
C22
C19
C17
C15
C14
C16
C32
C42
C45
C38
C48
C47
C43
C56


R4
R3
R31
R18
R20
R23
R17
R19
R21
R22
R24
R25
R12
R28
R26
R27
R33
R32
R49
R40
R34
R41
R45
R42
R39
R35
R38
R5
R6
R13
R10
R15
R8
R9
R16
R14
R11
R7
R48
R47
R46
R36
R2
R29
R37
R43
R44
R30
R1



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BA6	a -.3VDC m -.3VDC	0V	0V	6.3VAC	105VDC	105VDC	.6VDC		
V 2	7F8/8	0V	0V	140VDC	a 6.8VDC m 6.8VDC	a 65VDC m 85VDC	a 65VDC m 85VDC	5.3VAC	† a 3.3VDC m 3.3VDC	
V 3	6BA6	-.3VDC	0V	0V	6.3VAC	124VDC	85VDC	.6VDC		
V 4	6AU6	0V	0V	0V	6.3VAC	198VDC	125VDC	1.3VDC		
V 5	6BC7	a -.8VDC m -.3VDC	a -1.6VDC m -3.4VDC	0V	0V	8.3VAC	a -2.1VDC	11VDC	-.6VDC	0V
V 6	6AV6	-.8VDC	0V	0V	6.3VAC	-.8VDC	-.6VDC	80VDC		
V 7	6Y6-G	0V	6.3VAC	189VDC	180VDC	.1VDC	0V	0V	11VDC	
V 8	5AZ4	0V	370VAC	0V	370VAC	0V	320VAC	0V	320VAC	

† TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BA6	a2.5Meg m2.5Meg	0Ω	0Ω	.1Ω	11.5KΩ	12KΩ	47Ω		
V 2	7F8/8	a0Ω m0Ω	0Ω	12.5KΩ	a1.5KΩ m170KΩ	a1.5KΩ m170KΩ	a70KΩ m10.5KΩ	.1Ω	a115Ω m115Ω	
V 3	6BA6	a5.1Meg m5Meg	0Ω	0Ω	.1Ω	12.5KΩ	12.5KΩ	47Ω		
V 4	6AU6	a3.5KΩ m3.5Ω	0Ω	0Ω	.1Ω	11.5KΩ	12.5KΩ	120Ω		
V 5	6BC7	Inf.	45KΩ	0Ω	0Ω	1Ω	a2.2Meg m1.3Meg	22KΩ	Inf.	0Ω
V 6	6AV6	10Meg	0Ω	0Ω	1Ω	515KΩ	515KΩ	12720Ω		
V 7	6Y6-G	Inf.	.1Ω	1520Ω	12.5KΩ	475KΩ	0Ω	0Ω	180Ω	
V 8	5AZ4	Inf.	86KΩ	Inf.	0Ω	Inf.	1Ω	Inf.	90KΩ	

† MEASURED FROM PIN 8 OH V8

* TAKEN IN AM POSITION
* TAKEN IN FM POSITION

THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1951

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning gang fully closed and set pointer 4 11/16 ins. to the right of the left hand end of dial backplate.

AM ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 1 (Grid) of 7F8 (V2). Low side to chassis.	455KC (400∿ Mod)	AM (CCW)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.		Loop	1600KC	"	Set pointer 10 11/32ins. to the right of left hand edge of dial backplate.	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		Loop	580KC	"	Set pointer 5 7/16ins. to the right of left hand edge of dial backplate.	"	A6, A7, A8	"
4.		Loop	1500KC	"	Tune for max. output.	"	A9	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. Repeat steps 2, 3, & 4 until no further increase in output can be obtained.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (± 1%) resistors in series from Point (A) to chassis. The junction of these two resistors is alignment Point (C) as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	.1MFD	High side to pin 1 (Grid) of 6BA6 (V3). Low side to chassis.	9.1MC (unmod.)	FM (Center)	Tuning gang fully open.	DC probe to point (A). Common to chassis.	A10, A11, A12	Adjust for maximum deflection.
6.	"	High side to pin 1 (Grid) of 7F8 (V2). Low side to chassis.	"	"	"	"	A13, A14	"
7.	"	"	"	"	"	DC probe to point (B). Common to chassis.	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	SCOPE CONNECT	ADJUST	REMARKS
5.	.1MFD	High side to pin 1 (Grid) of 6BA6 (V3). Low side to chassis.	9.1MC (450KC SWP)	FM (Center)	Point of non-interference.	Vert. Amp. to point (A). Low side to chassis.	A10, A11, A12	Disconnect stabilizor capacitor C2. Adjust for maximum amplitude and symmetry as per fig.1
6.	"	High side to pin 1 (Grid) of 7F8 (V2). Low side to chassis.	"	"	"	"	A13, A14	"
7.	"	"	"	"	"	"	A15	Reconnect capacitor C2. Adjust A15 so 9.1MC occurs at center of crossover lines as per fig.2. SLIGHTLY retouch A10 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
8.	300Ω carbon resistor	High side thru 300Ω to pin 1 of antenna socket, (disconnect line ant.) Low side to chassis.	105MC (unmod.)	FM	Set pointer 9 11/64 ins. to the right of the left hand edge of dial backplate	DC probe to point (A). Common to chassis.	A16, A17 A18	Adjust for maximum deflection.
9.	"	"	92MC	"	Set pointer 6 3/16 ins. to the right of left hand edge of dial backplate.	"	L5, L3, L1	Check coils with a tuning wand and if necessary expand or compress coil turns for maximum deflection. If coils are changed, repeat steps 8 & 9 until no further improvement can be made.

FIG. 1

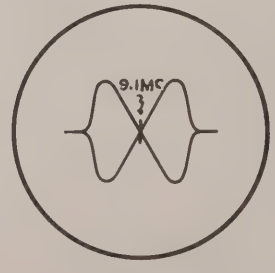


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

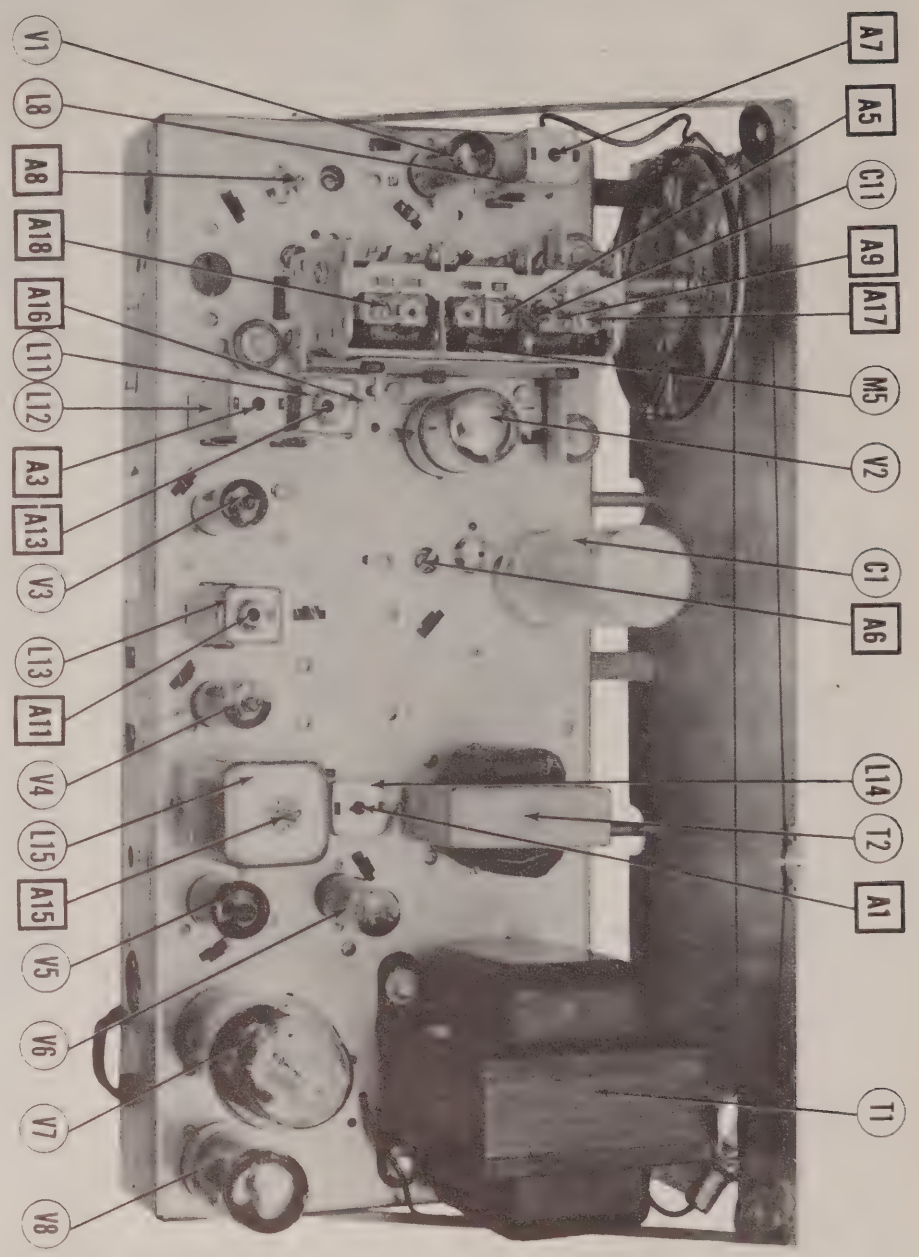
ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		PHILCO PART No.	STANDARD REPLACEMENT		
V1	RF Amplifier	6BA6	6BA6	7BK	
V2	Conv.-Phono Amp.	7F8/S	7F8/S		
V3	1st. IF Amplifier	6BA6	6BA6	7BK	
V4	2nd. IF Amplifier	6AU6	6AU6	7BK	
V5	Ratio Detector-AVC	6BC7	6BC7	8BW	
V6	AM Det.-AVC-AF	6AV6	6AV6	7BT	
V7	Power Output	6Y6G	6Y6G	7AC	
V8	Rectifier	5AZ4	5AZ4	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	PHILCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	40	400	30-2570-64	AF81218H2B		UPT429		TVL-4745	● Filter
B	60	400						TVA-1712	■ Filter
C	40	350							▲ Filter
D	10	50							Output Cathode
C2	2	50	30-2417-7	E26E6		BBR2-50T		TVA-1301	Stabilizing Cap.
C3	470		62-147001001	SI470	D6-471	5W5T5	GP2K-471	19C15	RF Coupling
C4	100		62-110001001	SI100	D6-101	5W5T1	GP2K-101	19C11	AVC Filter
C5	1500		62-215001001	SI1500	D6-152	1W5D15	GP2L-152	29C8	RF Amp. Plate
C6	1500		62-215001001	SI1500	D6-152	1W5D15	GP2L-152	29C8	RF Amp. Screen
C7	100	500	60-10105017	1468-0001	D6-101	5W5T1	GP1K-101	1FM-31	RF Amp. Cathode
C8	100		62-110001001	SI100	D6-101	5W5T1	GP1K-101	19C11	RF Amp. Fil.
C9	100		62-110001001	SI100	D6-101	5W5T1	GP1K-101	19C11	RF Bypass
C10	51		62-051009001	SI50	D6-500	5W5Q5	GP1K-500	19C28	RF Coupling
C11	10		62-010009001	SI10	D6-100	5W5Q1	GP1K-100	19C19	Fixed Trimmer
C12	100		62-110001001	SI100	D6-101	5W5T1	GP1K-101	19C11	Osc. Grid Cap.
C13	220		62-122001001	SI220	D6-221	5W5T25	GP2K-221	19C13	Osc. Feedback
C14	.01	400	61-0120	P488-01	D6-103	PTE4S1	821-01	4TM-S1	RF Bypass
C15	100		62-110001001	SI100	D6-101	5W5T1	GP1K-101	19C11	Osc. Plate Dec.
C16	.047	400	61-0122	P488-047	DF-503	PTE4S5		4TM-S47	Phono Pre-Amp. Dec.
C17	.0033	400	45-3505-55	P688-0033	D6-332	PTE6D3	GP2-333-332	6TM-D3	Audio Coupling
C18	.001	600	45-3500-5	P688-001	D6-102	PTE6D1	GP2L-102	6TM-D1	Tone Comp.
C19	.01	100	30-1226-10	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Conv. Cathode Bypass
C20	220		62-122001001	SI220	D6-221	5W5T25	GP2K-221	19C13	Conv. Cathode Bypass
C21	100		62-110001001	SI100	D6-101	5W5T1	GP1K-101	19C11	Conv. Cathode Bypass
C22	100		62-110001001	SI100	D6-101	5W5T1	GP1K-101	19C11	Conv. Fil. Bypass
C23	100		62-110001001	SI100	D6-101	5W5T1	GP1K-101	19C11	Conv. Plate Dec.
C24	.01	600	61-0120	P688-01	D6-103	PTE6S1	821-01	6TM-S1	Conv. Plate Dec.
C25	.01	400	61-0120	P488-01	D6-103	PTE6S1	821-01	4TM-S1	AVC Filter
C26	100		62-110001001	SI100	D6-101	5W5T1	GP1K-101	19C11	AVC Filter
C27	.01	400	61-0120	P488-01	D6-103	PTE4S1	821-01	4TM-S1	1st. IF Dec.
C28	.002	400	61-0062	P688-002	D6-202	PTE6D2	GP2M-202	6TM-D2	1st. IF Screen
C29	.01	400	61-0120	P488-01	D6-103	PTE4S1	821-01	4TM-S1	1st. IF Filament
C30	100		62-110001001	SI100	D6-101	5W5T1	GP1K-101	19C11	1st. IF Filament
C31	100		62-110001001	SI100	D6-101	5W5T1	GP1K-101	19C11	2nd. IF Plate Dec.
C32	.01	400	61-0120	P488-01	D6-103	PTE4S1	821-01	4TM-S1	2nd. IF Plate Dec.
C33	.002	400	61-0062	P688-002	D6-202	PTE6D2	GP2-333-202	6TM-D2	2nd. IF Screen
C34	.01	400	61-0120	P488-01	D6-103	PTE4S1	821-01	4TM-S1	2nd. IF Cathode
C35	100		62-110001001	SI100	D6-101	5W5T1	GP1K-101	19C11	2nd. IF Fil.
C36	100		62-110001001	SI100	D6-101	5W5T1	GP1K-101	19C11	Diode RF Filter
C37	15		62-015400021	SI15	D6-150	5W5Q2	GP1K-150	19C22	IF Coupling
C38	.002	400	61-0062	P688-002	D6-202	PTE6D2	GP2-333-202	6TM-D2	AVC Filter *
C39	100		62-110001001	SI100	D6-101	5W5T1	GP1K-101	19C11	RF Bypass
C40	220		62-122001001	SI220	D6-221	5W5T25	GP2K-221	19C13	Diode Load Cap.
C41	100		62-110001001	SI100	D6-101	5W5T1	GP1K-101	19C11	RF Bypass
C42	.002	400	61-0062	P688-002	D6-202	PTE6D2	GP2-333-202	6TM-D2	De-emphasis
C43	.01	400	61-0120	P488-01	D6-103	PTE4S1	821-01	4TM-S1	DAVC Dec.
C44	100		62-110001001	SI100	D6-101	5W5T1	GP1K-101	19C11	RF Bypass
C45	.02	400	61-0108	P488-02	DF-203	PTE4S2		4TM-S2	Audio Coupling
C46	100		62-110001001	SI100	D6-101	5W5T1	GP1K-101	19C11	Tone Comp.
C47	.03	400	30-4517	P688-03		PTE6S3		6TM-S3	Tone Comp.
C48	.0068	400	45-3500-7	P688-0068	D6-682	PTE6D6	GP2-333-682	6TM-D68	Audio Coupling
C49	100		62-110001001	SI100	D6-101	5W5T1	GP1K-101	19C11	AF Amp. Plate
C50	.0068	400	45-3500-7	P688-0068	D6-682	PTE6D6	GP2-333-682	6TM-D68	Tone Comp.
C51	.0068	400	45-3500-7	P688-0068	D6-682	PTE6D6	GP2-333-682	6TM-D68	Audio Coupling

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

ITEM No.	RATING CAP.	RATING VOLT	PHILCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C52	220		62-122001001	SI220	D6-221	5W5T25	GP2K-221	19C13	Output Grid
C53	100		62-110001001	SI100	D6-101	5W5T1	GP1K-101	19C11	RF Bypass
C54	.006	600	45-3500-7	P688-006	D6-562	PTE6D6	GP2-333-602	6TM-D6	Output Plate
C55	.01	400	45-3505-41	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Line Filter
C56	.01	400	45-3505-41	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Line Filter

* Some models use .01 MFD. in this application.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	PHILCO PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	4Meg	½	33-5566-12	Q11-141	AG-85-S	B-86-S	Tone Control
B	Shaft		Not req.	Not req.	FS-3	Not req.	Attach to R1A per instructions
C	Switch		Not req.	76-1	SWB	Not req.	Attach to R1A per instructions
R2A	2 Meg	½	33-5535-27	Q18-139X	AT-116	BT-78	Volume Control - Tapped ④ 1Meg
B	Shaft		Not req.	Not req.	FS-3	Not req.	Attach to R2A per instructions

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	PHILCO PART No.	IRC PART No.	IDENTIFICATION CODES
R3	2.2Meg	½	66-5228340	BTS-2.2Meg	RF Amp. Grid
R4	47Ω	½	66-0478340		RF Amp. Cathode
R5	10KΩ	½	66-3108340	BTS-10K	RF Amp. Screen
R6	1000Ω	½	66-2108340	BTS-1000	RF Amp. Plate Decoupling
R7	1Meg	½	66-5108340	BTS-1Meg	Phono Input Shunt
R8	15KΩ	½	66-3158340	BTS-15K	Conv.-Phono Pre-Amp. Gird
R9	330KΩ	½	66-4338340	BTS-330K	Phono Pre-Amp. Grid
R10	6800Ω	½	66-2688340	BTS-6800	Phono Pre-Amp. Cathode
R11	27KΩ	½	66-3278340	BTS-27K	Phono Pre-Amp. Plate
R12	33KΩ	½	66-3338340	BTS-33K	Phono Pre-Amp. Decoupling
R13	470Ω	½	66-1478340	BTS-470	FM Osc. Cathode
R14	10KΩ	½	66-3108340		FM Osc. Plate
R15	1500Ω	½	66-2158340	BTS-1500	AM Osc. Cathode - See Note 1
R16	68KΩ	½	66-3688340	BTS-68K	AM Osc. Plate
R17	1000Ω	½	66-2108340	BTS-1000	Conv. Decoupling
R18	1Meg	½	66-5108340	BTS-1Meg	AVC Network
R19	1Meg	½	66-5108340	BTS-1Meg	1st. FM IF Amp. Grid
R20	47Ω	½	66-0478340		1st. IF Amp. Cathode
R21	10KΩ	½	66-3108340	BTS-10K	1st. IF Amp. Screen
R22	1000Ω	½	66-2108340	BTS-1000	1st. IF Amp. Plate Decoupling
R23	3300Ω	½	66-2338340	BTS-3300	2nd. FM IF Amp. Grid
R24	120Ω	½	66-1128340	BTS-120	2nd. FM IF Amp. Cathode
R25	1000Ω	½	66-2108340	BTS-1000	2nd. FM IF Amp. Screen - See Note 2
R26	1000Ω	½	66-2108340	BTS-1000	2nd. FM IF Amp. Plate Decoupling
R27	47KΩ	½	66-3478340	BTS-47K	Ratio Det. Diode Load
R28	47KΩ	½	66-3478340	BTS-47K	De-emphasis
R29	470KΩ	½	66-4478340	BTS-470K	Diode Load
R30	47KΩ	½	66-3478340	BTS-47K	Diode Filter
R31	100KΩ	½	66-4108340	BTS-100K	AVC Network
R32	2.2Meg	½	66-5228340	BTS-2.2Meg	AVC Network
R33	2.2Meg	½	66-5228340	BTS-2.2Meg	AVC Network
R34	22KΩ	½	66-3228340	BTS-22K	AVC Load
R35	330KΩ	½	66-4338340	BTS-330K	Voltage Divider
R36	100KΩ	½	66-4108340	BTS-100K	Series Test Socket
R37	27KΩ	½	66-3278340	BTS-27K	Tone Compensation
R38	10Meg	½	66-6108340	BTS-10Meg	AF Amp. Grid
R39	270KΩ	½	66-4278340	BTS-270K	AF Amp. Plate
R40	470KΩ	½	66-4478340	BTS-470K	Output Grid
R41	180Ω	2	66-1184340	BW-2-180	Output Cathode - Wire Wound
R42	2.7Meg	½	66-5278340	BTS-2.7Meg	Feedback Network
R43	120Ω	½	66-1128340	BTS-120	Feedback Network
R44	4.3Ω	1		BW-1-4.3	Feedback Network - Wire Wound - See Note 3
R45	10Ω	½	66-0108340		Parasitic Suppressor
R46	120KΩ	1	66-4125340	BTA-120K	Voltage Divider
R47	2200Ω	2	33-1335-97	BW-2-2200	Filter - Wire Wound
R48	330Ω	7	33-1335-90	1 3/4A-350	Filter - Wire Wound
R49	1Ω	½	66-9108340	BW-½-1	Series Pilot Lights - Wire Wound

Note 1 Some models use 1000Ω Resistor in this application.
Note 2 Some models use 22KΩ Resistor in this application.
Note 3 Some models use 4.7Ω Resistor in this application.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	PHILCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117 VAC ④ .77A	520VCT .120ADC	5VAC ④ 2A	6.3VAC ④ 3.8A	32-8406	PC8405 ②		

② Drill new mounting holes.
③ Add series resistor to reduce plate voltage.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	PHILCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T2	2.3KΩ	4Ω	190Ω	.6Ω	32-8407	A-3825	A-2928①	R0-2 ①	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS SIZE	RATINGS FIELD	RATINGS V. C. IMP.	PHILCO PART No.	VIKING PART No.	QUAM PART No.	NOTES
SP1	9½"	P. M.	4Ω	36-1610-6 ② 36-1610-7 ⑤	10J12	10A4A	② Used in Model 51-1733 ③ Used in Model 51-1734

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	PHILCO PART No.	MEISSNER PART No.	NOTES
L1	FM Ant. Coil	0Ω		32-4415		
L2	Isol. Choke	5Ω		32-4061-2		
L3	FM RF Coil	0Ω		32-4416		
L4	RF Choke	5Ω		32-4061-2		Red and White Dot
L5	RF Osc. Coil	0Ω		32-4414		
L6	Loop Ant.					
L7	AM Ant. Coil	2.5Ω		32-4413		Tap .2Ω
L8	AM RF Coil	69Ω	5Ω	32-4399-3A		
L9	RF Choke	5Ω		32-4061-2		Red and White Dot
L10	AM Osc. Coil	8Ω		32-4153-6		Tap 1Ω
L11	1st. FM IF	.2Ω	.2Ω	32-4372A		
L12	1st. AM IF	5Ω	12.5Ω	32-4258-3A		
L13	2nd. FM IF	2.2Ω	2.2Ω	32-4372-2A		
L14	2nd. AM IF	16Ω	16Ω	32-4240-3A		
L15	Ratio Det.	1.5Ω	.1Ω	32-4417		Tap .4Ω

PHONO CARTRIDGE and NEEDLE

ITEM No.	PHILCO PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	SHURE PART No. CARTRIDGE	SHURE PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE	REMARKS
M1	76-4649							

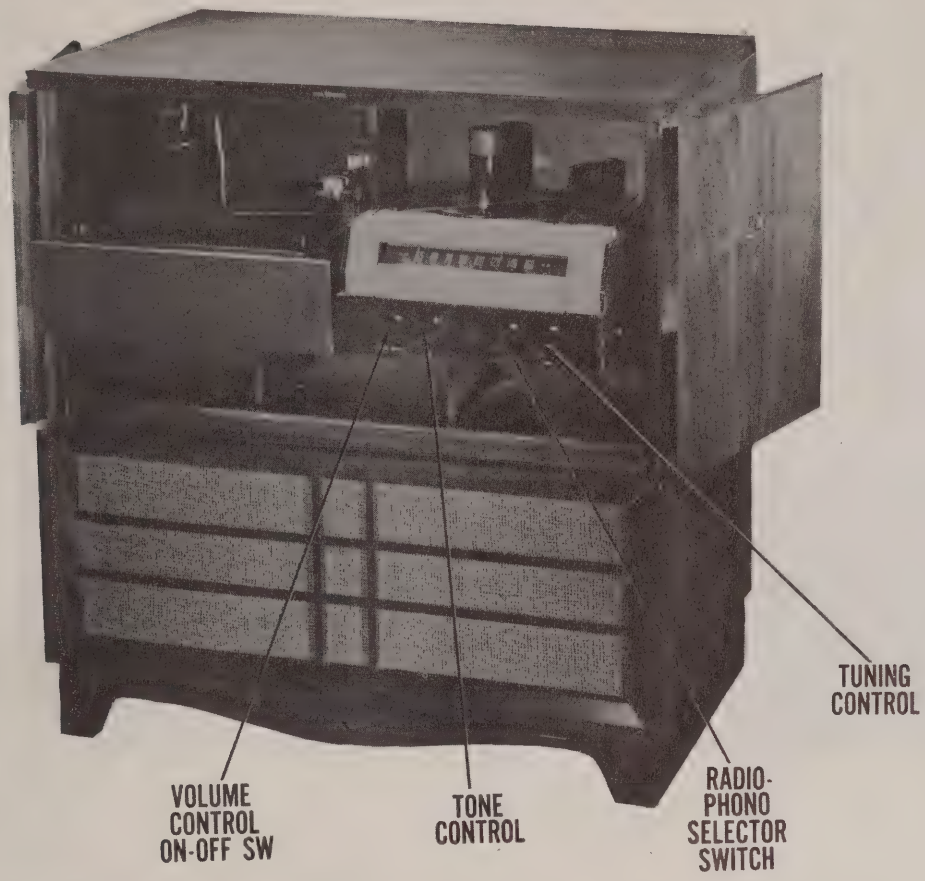
DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	PHILCO PART No.		NOTES
M2	Bayonet	6-8	.25	Blue	34-2064		Type #44
M3	Bayonet	6-8	.25	Blue	34-2064		Type #44

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M4	Switch	42-1910	AM-FM-Phono
M5	3Gang Var. Cap.	31-2750	(15-570MMF, 28-584MMF, 21-402MMF)
A6	Padder	31-6473-7	AM Osc. Adj.
A16	Trimmer	31-6511	FM Osc. Adj.
	Dial Scale	54-5103-1	Model 51-1733, 51-1733 (L)
	Dial Scale	54-5108	Model 51-1734
	Dial Pointer	56-5630-18	

RCA VICTOR
MODEL A-82 (Ch. RC1094)



RCA VICTOR
MODEL A-82 (Ch. RC1094)

TRADE NAME	RCA Victor, Model A-82 (Ch. RC1094)
MANUFACTURER	RCA Victor, Div. of Radio Corp. of America, Camden, New Jersey
TYPE SET	AC Operated Combination Phono-Radio, Superheterodyne Receiver with Loop Ant.
TUBES (EIGHT)	Types 6BA6 RF Amp., 6BE6 Converter, 6BA6 IF Amp., 6AV6 DET.-AVC-AF, 6C4 Phase Inv., (2) 6V6GT Power Output, 5Y3GT Rectifier
POWER SUPPLY	110-120 Volts AC — RATING .68 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1600

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set dial pointer, turn tuning gang fully closed and set the pointer to the reference mark at the left hand end of the dial backplate.
The chassis should be in the cabinet with the record player and loop antenna connected, remove the bottom cover to reach the bottom adjustments.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01MFD	High side to stator on front section of tuning gang. Low side to chassis.	455KC (400∿ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.		Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		Loop	1400KC	1400KC	"	A6, A7	"
4.		Loop	600KC	600KC	"	A8, A9	Rock tuning gang while adjusting A8, and A9, for maximum output. Repeat steps 2, 3, and 4 until no further improvement can be made.

RECORD CHANGER UNITS--- RCA MODEL RP-190 AND RCA 960282.
RCA MODEL 960282 SIMILAR TO MILWAUKEE ERWOOD MODEL 11600 IN PHOTOFACT SET 72 FOLDER 7 OR RECORD CHANGER MANUAL CM-3.

HOWARD W. SAMS & CO., INC. • Indianapolis 1, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		RCA PART No.	STANDARD REPLACEMENT		
V1	RF Amplifier	6BA6	6BA6	7BK	
V2	Converter	6BE6	6BE6	7CH	
V3	IF Amplifier	6BA6	6BA6	7BK	
V4	Det.-AVC-AF	6AV6	6AV6	7BT	
V5	Phase Inverter	6C4	6C4	6BG	
V6	Power Output	6V6GT	6V6GT	7AC	
V7	Power Output	6V6GT	6V6GT	7AC	
V8	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	30	450	72052	AFH6J10I8A		UP3345V4		TVL-3741	▲ Filter
B	30	350						TVA-1201	■ Filter
C	40	25							▲ Bias Filter
C2	150	500	39632	1468-00015	D6-151	5W5T15	GP2K-151	19C12	Ant. Coupling
C3	.005	400	73920	P688-005	D6-502	PTE6D5	811-005	6TM-D5	RF Amp. Screen
C4	.01	400	73561	P488-01	D6-103	PTE4S1	821-01	4TM-S1	RF Amp. Decoupling
C5	47		39042	SI47N750	TCN-47		N750K-470	19C19	Fised Trimmer
C6	150	500	39632	1468-00015	D6-151	5W5T15	GP2K-151	19C12	RF Coupling
C7	56		71924		TCN-56				Osc. Grid Cap.
C8	.01	400	73561	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Conv. Screen
C9	.05	200	73553	P288-05	DF-503	PTE4S5		2TM-S5	AVC Filter
C10	.005	400	73920	P688-005	D6-502	PTE6D5	811-005	6TM-S5	IF Amp. Screen
C11	150	500	39632	1468-00015	D6-151	5W5T15	GP2K-151	19C12	Diode RF Filter
C12	.0015	200	71394	P688-0015	D6-152	1W5D15	GP2L-152	29C8	Audio Coupling
C13	.018	200	58476	P288-015	DF-203	PTE6S15		6TM-S15	Tone Comp.
C14	.015	200	73797	P288-015	D6-103	PTE6S15		6TM-S15	Tone Comp.
C15	.01	200	73561	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Audio Coupling
C16	150	500	39632	1468-00015	D6-151	5W5T15	GP2K-151	19C12	AF Amp. Plate
C17	.003	400	70603	P688-003	D6-302	PTE6D3	GP2-333-302	6TM-D3	Tone Comp.
C18	.01	400	73561	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Audio Coupling
C19	.02	400	73562	P488-02	DF-203	PTE4S2		4TM-S2	Audio Coupling
C20	.002	1000	73803	P1088-002		PTE16D2		MB-D2	Output Plate
C21	.002	1000	73903	P1088-002		PTE16D2		MB-D2	Output Plate
C22	.001	600	73801	P688-001	D6-102	PTE6D1		6TM-D1	Tone Comp.
C23	.0018	600	73851	P688-002	D6-182	PTE6S15		6TM-D2	Tone Comp.

CONTROLS

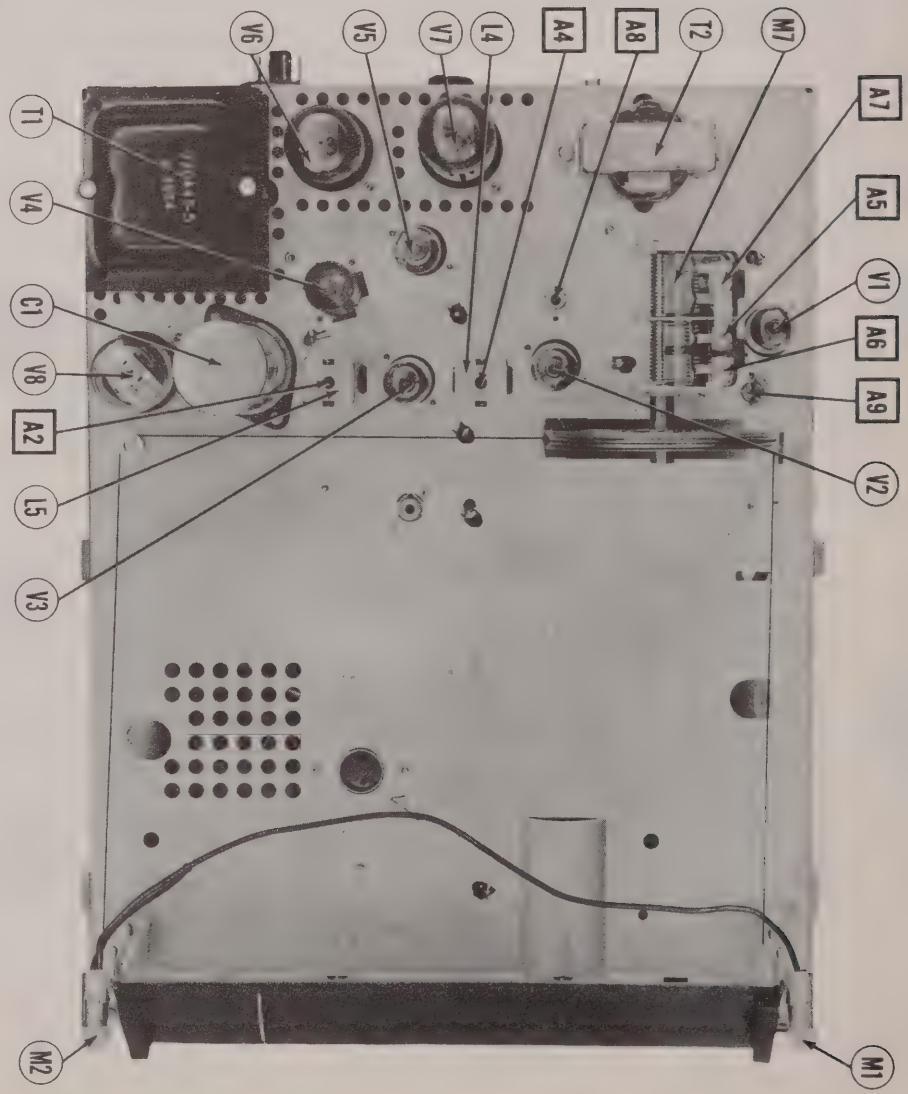
ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	RCA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	1.5Meg	½	75537	Q18-139XX		SBBT-222-S	Volume Control - Tapped ⓐ250KΩ and 500KΩ ø
B	Switch		Not req.	76-1			Attach to R1A per instructions
R2A	2 Meg	½	75538	Q11-139	AG-83-S	B-75	Tone Control
B	Shaft		Not req.	Not req.	FS-3	Not req.	Attach to R2A per instructions

ø Some models use 1Meg Control - Tapped ⓐ 150KΩ and 300KΩ

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	RCA PART No.	IRC PART No.	
R3	2.2Meg	½		BTS-2.2Meg	RF Amp. Grid
R4	82Ω	½		BTS-82	RF Amp. Cathode
R5	27KΩ	1		BTA-27K	RF Amp. Screen
R6	1500Ω	½		BTS-1500	RF Amp. Decoupling
R7	8200Ω	½		BTS-8200	RF Coil Shunt

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	RCA PART No.	IRC PART No.	
R8	2.2Meg	½		BTS-2.2Meg	Conv. Grid
R9	22KΩ	½		BTS-22K	Osc. Grid
R10	22KΩ	2		BTB-22K	Osc. Plate
R11	560Ω	½		BTS-560	IF Amp. Cathode
R12	68KΩ	½		BTS-68K	IF Amp. Screen
R13	22KΩ	½		BTS-22K	Diode Filter
R14	330K	½		BTS-330K	Diode Load
R15	150K	½		BTS-150K	Diode Load - See Note
R16	2.2Meg	½		BTS-2.2Meg	AVC Network
R17	100KΩ	½		BTS-100K	AVC Network
R18	68K	½		BTS-68K	AVC Network
R19	33Meg	½			Delayed AVC Network
R20	1.5Meg	½		BTS-1.5Meg	Tone Compensation
R21	150K	½		BTS-150K	Tone Compensation - See Note
R22	1.5Meg	½		BTS-1.5Meg	Tone Compensation
R23	27K	½		BTS-27K	Tone Compensation
R24	18KΩ	½		BTS-18K	Tone Compensation
R25	27KΩ	½		BTS-27K	Tone Compensation
R26	10Meg	½		BTS-10Meg	AF Amp. Grid
R27	270K	½		BTS-270K	AF Amp. Plate
R28	68K	½		BTS-68K	Phase Inv. Grid
R29	3300	½		BTS-3300	Phase Inv. Cathode
R30	82K	½		BTS-82K	Phase Inv. Plate
R31	470K	½		BTS-470K	Output Grid
R32	470K	½		BTS-470K	Output Grid
R33	2200Ω	5	73637	1 3/4A-2250	Filter - Wire Wound
R34	270Ω	2		BW-2-270	Bias Network
R35	3Ω	½	72323	BW-½-3	Series Pilot Lamps - Wire Wound

Note: Some models use parallel resistors in this application to obtain desired value.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	RCA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC @ .625A	640VCT .065ADC	5VAC @ 2A	6.3VAC @ 2.25A	75566	P-6011	P-2951	PV-70 ①

① Add series resistor to reduce plate voltage

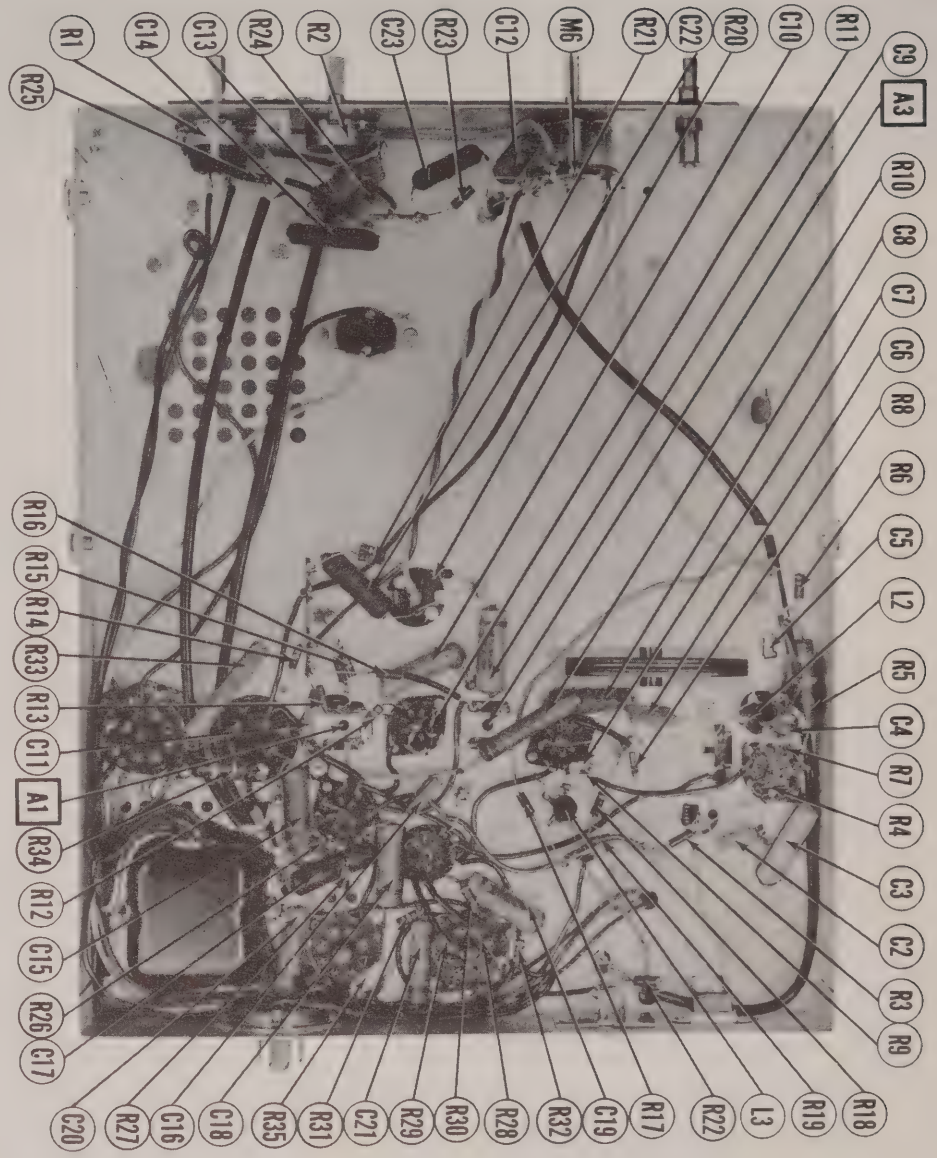
TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		RCA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	105KΩ CT	3.3Ω	740Ω CT	.7Ω	73636	A-3823	A-3027 ②	R0-110 ②	② Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	V. C. IMP.	RCA PART No.	VIKING PART No.	QUAM PART No.	
SP1	PM	3.3Ω	74974	12J12	12A4A	
	CONE DIA.	V. C. DIA.				
SP2	11½"	1"	74901			

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	RCA PART No.	MEISSNER PART No.	
L1	Loop Ant.	1.3Ω		75706		
L2	RF Coil	33Ω	5.5Ω	75596		Tap. 1.7Ω
L3	Osc. Coil	.5Ω	6Ω	73516		
L4	1st. IF	13Ω	15Ω	75486		
L5	2nd. IF	15Ω	15Ω	75487		

PHONO CARTRIDGE and NEEDLE

ITEM No.	REPLACEMENT DATA							REMARKS
	RCA PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1	75575	CAC-J or AC-J	Q-33 A-3	W31AR	A53MG	34	0-1 or S-1	
M2	75475	ACD-2J	A-1 A-3			96-0-T	0-1 or S-1 and 0-3 or S-3	

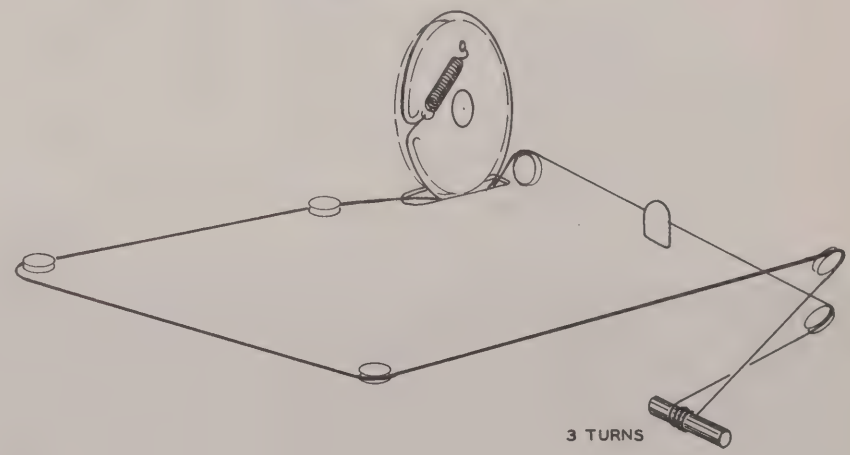
ASTATIC, SHURE, AND ELECTOR-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED.

DIAL LIGHTS

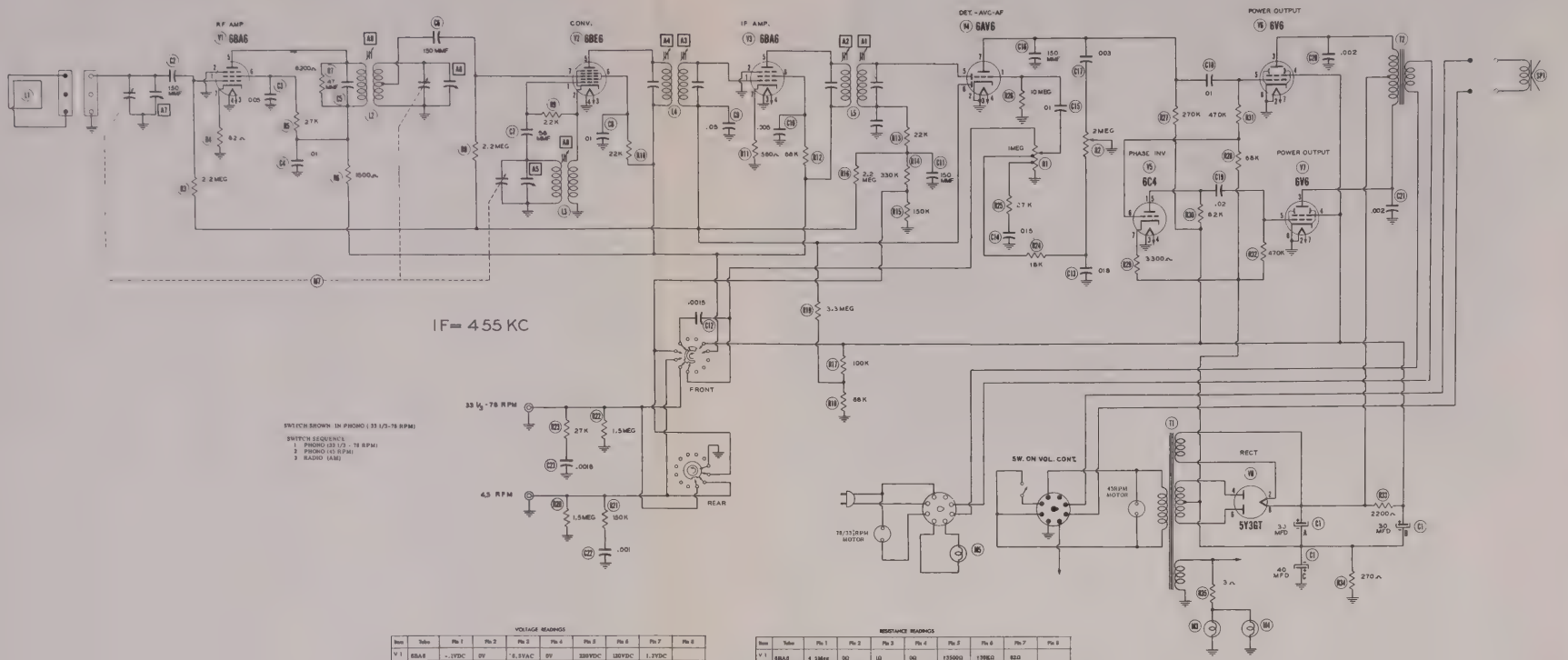
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					RCA PART No.		
M3	Bayonet	7.5	.2	White	11765		Type #51
M4	Bayonet	7.5	.2	White	11765		Type #51
M5	Bayonet	7.5	.2	White	11765		Type #51

MISCELLANEOUS

ITEM No.	PART NAME	RCA PART No.	NOTES
M6	Switch	75597	Phono-Radio
M7	3 Gang Var. Cap.	75595	(35-500MMF, 22-227MMF, 17-151MMF)
	Dial Pointer	75536	
	Dial Scale	75550	



DIAL CORD DRIVE



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V1	6BA6	-.1VDC	0V	6.3VAC	0V	220VDC	130VDC	1.7VDC	
V2	6BE6	89VDC	0V	6.3VAC	0V	240VDC	80VDC	-.5VDC	
V3	6BA6	-.5VDC	0V	0V	6.3VAC	240VDC	130VDC	2.5VDC	
V4	6AV6	-.5VDC	0V	0V	6.3VAC	-.4VDC	-.5VDC	80VDC	
V5	6C4	100VDC	0V	0V	6.3VAC	180VDC	-18VDC	-18VDC	
V6	6V6GT	0V	0V	360VDC	360VDC	-13VDC	6.3VAC	6.3VAC	0V
V7	6V6GT	0V	0V	360VDC	360VDC	-13VDC	-18VDC	6.3VAC	0V
V8	5Y3GT	0V	0V	310VDC	310VAC	0V	310VAC	0V	310VDC

* TAKEN WITH VTVM

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V1	6BA6	4.5Meg	0Ω	1Ω	0Ω	12500Ω	130KΩ	82Ω	
V2	6BE6	22KΩ	5Ω	1Ω	0Ω	12200Ω	125KΩ	4.5Meg	
V3	6BA6	2.5Meg	0Ω	0Ω	1Ω	12200Ω	130KΩ	560Ω	
V4	6AV6	1Meg	0Ω	0Ω	1Ω	500K	2.5Meg	130K	
V5	6C4	190KΩ	Inf.	0Ω	1Ω	190KΩ	68K	2500Ω	
V6	6V6GT	0Ω	0Ω	135Ω	1220Ω	550K	1Ω	0Ω	
V7	6V6GT	0Ω	0Ω	140Ω	1220Ω	470KΩ	270Ω	1Ω	0Ω
V8	5Y3GT	0Ω	60KΩ	Inf.	325Ω	Inf.	325Ω	Inf.	60KΩ

† MEASURED FROM PIN 8 OF V8

ALL MEASUREMENTS TAKEN IN AM POSITION

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
©Howard W. Sams & Co., Inc. 1951

PHOTOFACT* Folder

*TRADE MARK

STEWART-WARNER
MODELS 9120-A, -B, -C, -D, -E, -F

IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . *unless* it has been purchased as part of a *complete* volume of PHOTOFACTS assembled in a DeLuxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

MODEL 9120-D

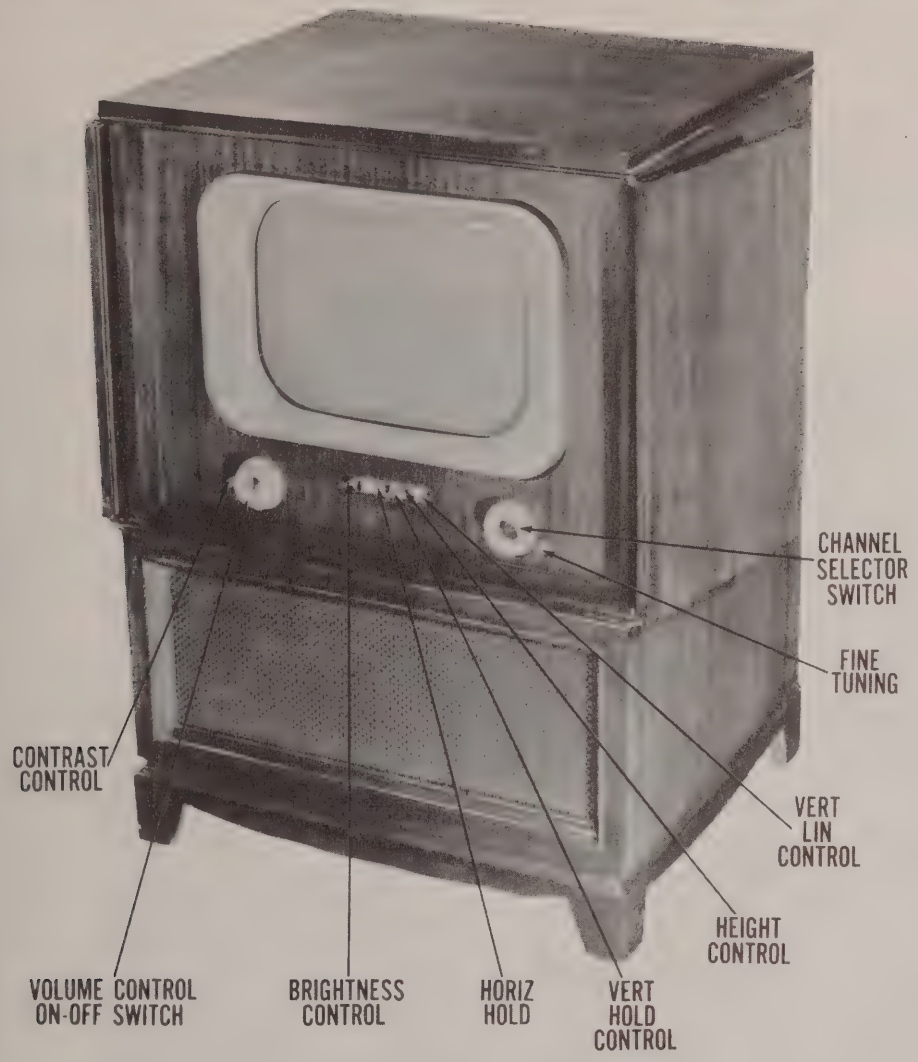
STEWART-WARNER
MODELS 9120-A, -B, -C, -D, -E, -F

HOWARD W. SAMS & CO., INC. • Indianapolis, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

DATE 7-51 SET 137 FOLDER 11

STEWART-WARNER
MODELS 9120-A, -B, -C, -D, -E, -F



STEWART-WARNER
MODELS 9120-A, -B, -C, -D, -E, -F

STEWART-WARNER MODEL 9120-D

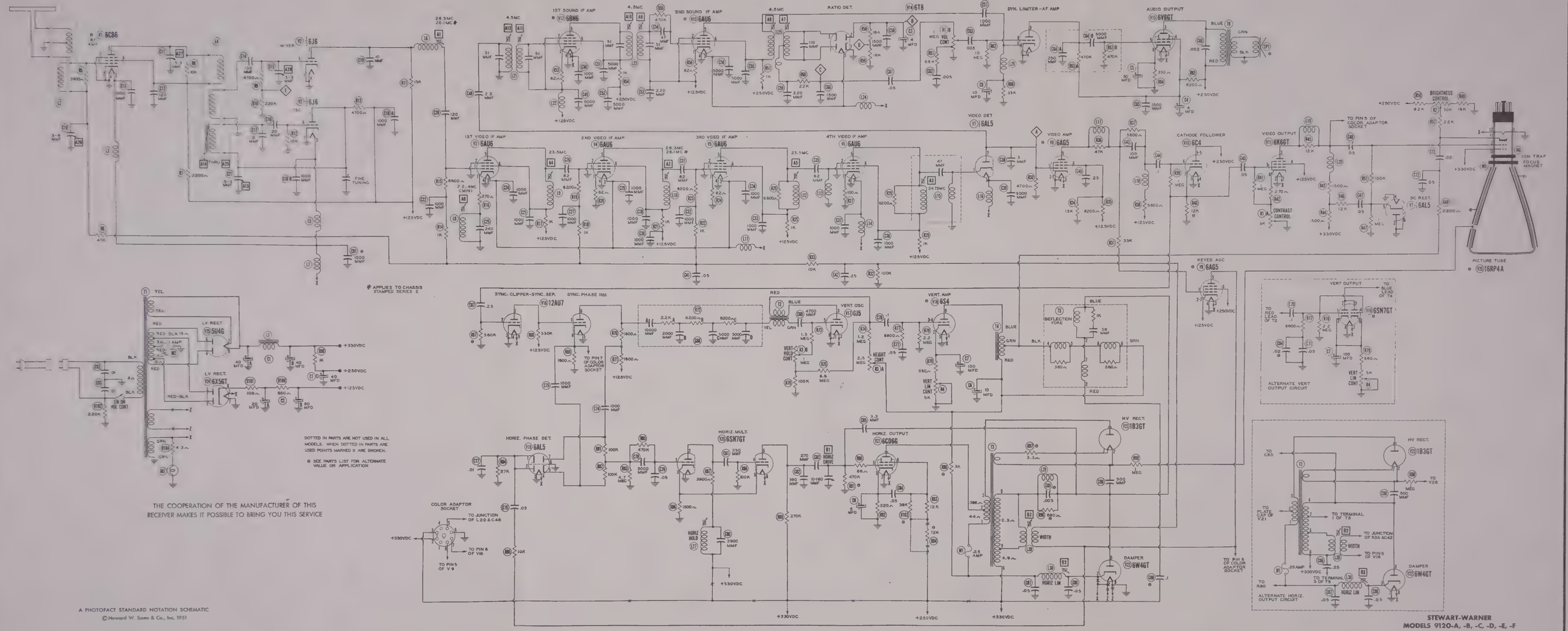
TRADE NAME	Stewart-Warner Models 9120-A, -B, -C, -D, -E, -F.
MANUFACTURER	Stewart-Warner Corp., 1826 Diversey Prwy., Chicago 14, Illinois
TYPE SET	Television Receiver
TUBES	Twenty-six
POWER SUPPLY	110-120 Volts AC-60Cycle
RATING	2.1Amp. @ 117 Volts AC
TUNING RANGE—CHANNELS	2 thru 13

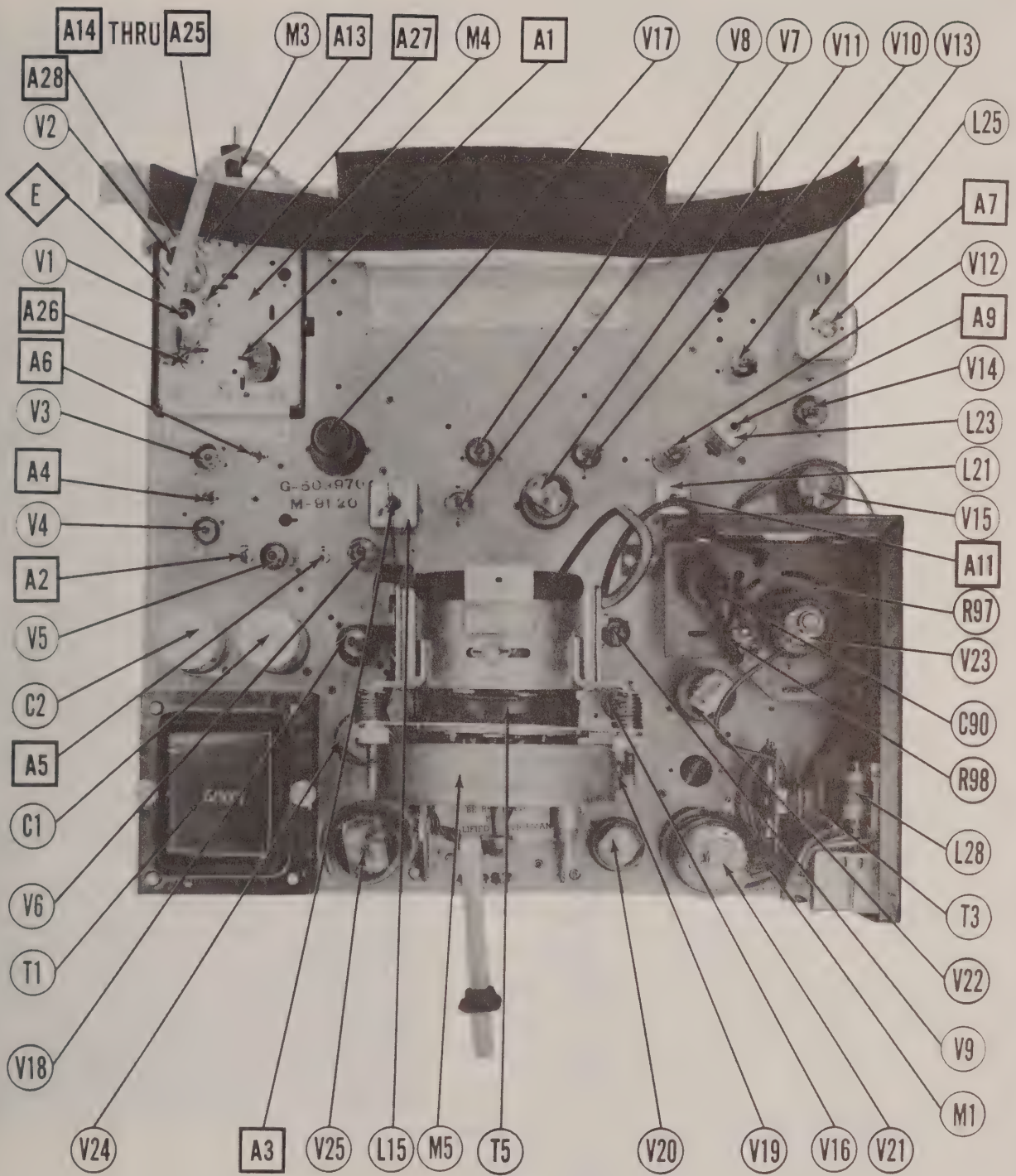
INDEX

Alignment Instructions ..... 6, 7.
Disassembly Instructions 11
Horizontal Sweep Circuit Adjustments 11
Parts List And Description 12, 13, 14
Photographs
Cabinet - Rear View 11
Capacitor And Alignment Identification 4, 9
Photographs (Continued)
Chassis - Top View 3
RF Tuner 10
Resistor And Inductor Identification 15, 16
Schematic 2
Tube Placement Charts 5
Voltage And Resistance Measurements 8

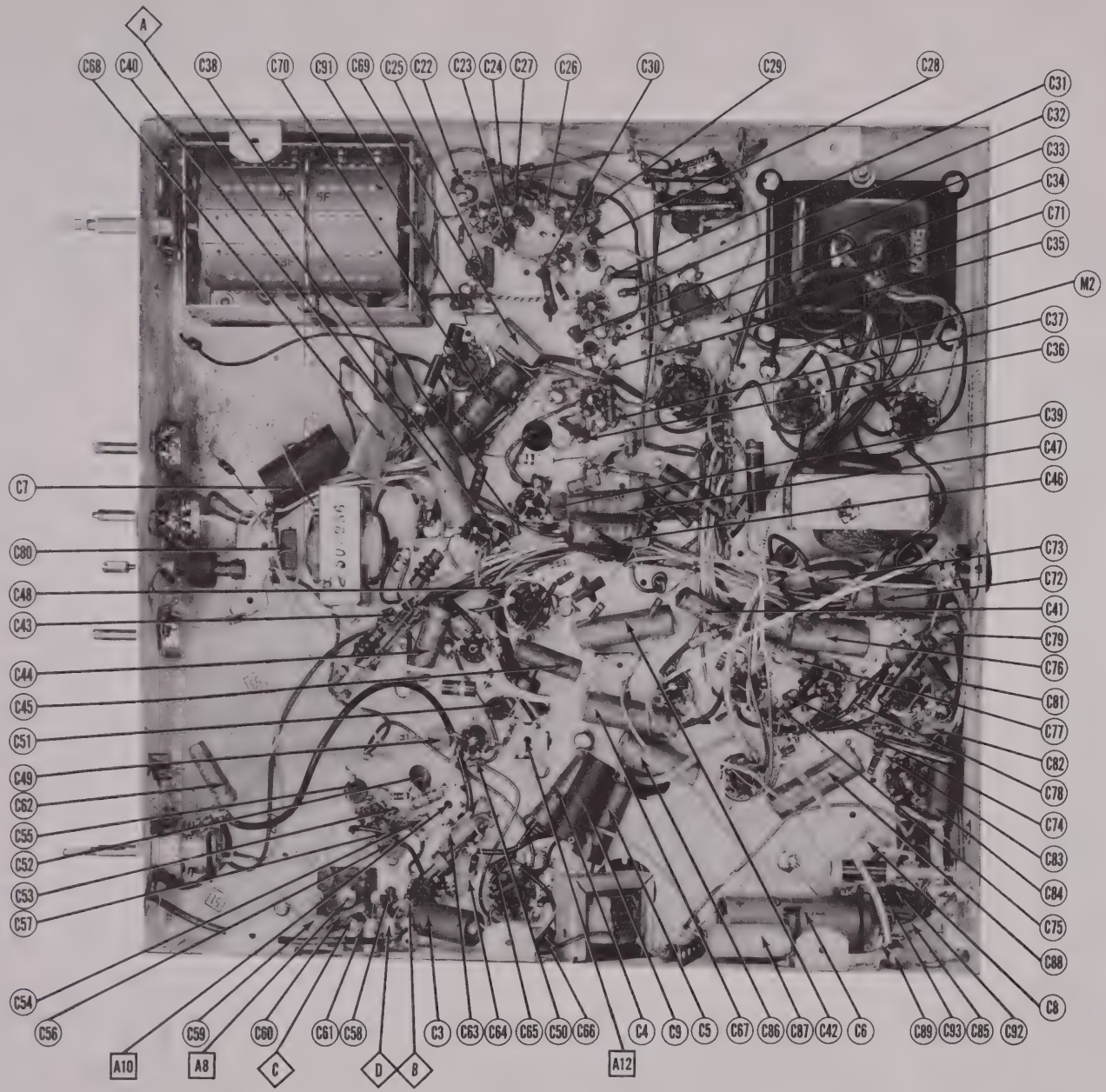
HOWARD W. SAMS & CO., INC. • Indianapolis 1, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

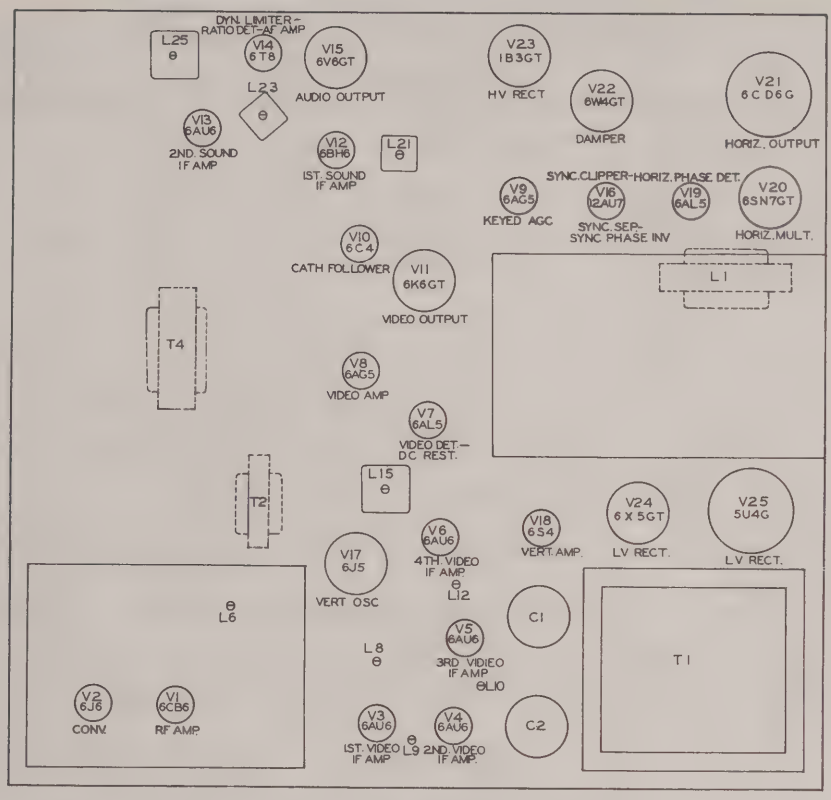

STEWART-WARNER
MODELS 9120-A, -B, -C, -D, -E, -F
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN.
⊕ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
* APPLIES TO CHASSIS STAMPED SERIES E
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1951
STEWART-WARNER
MODELS 9120-A, -B, -C, -D, -E, -F



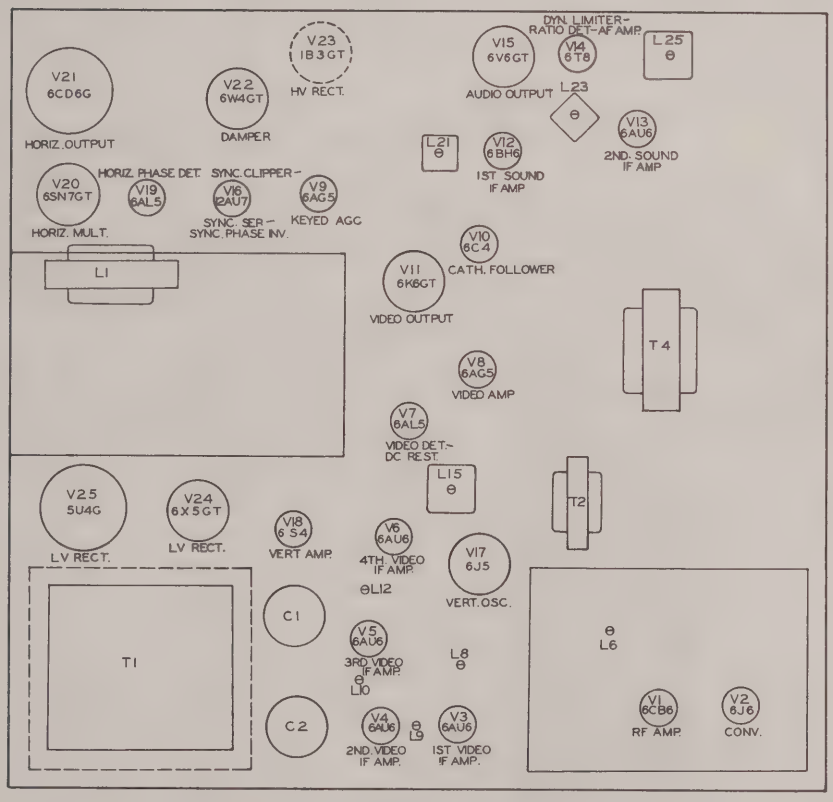
CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW- CAPACITOR AND ALIGNMENT IDENTIFICATION



TOP VIEW



BOTTOM VIEW

TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The end of the high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube to disable the high voltage.

VIDEO IF ALIGNMENT

Remove the converter tube, (V2) and replace it with a 6J6 which has Pin 1 removed, this will disable the local oscillator and prevent the possibility of erroneous indications.
Connect the negative lead of a 3 volt battery to the junction of R33 and C41, connect the positive lead to chassis.
On receivers which have an "E" in the series designation stamped on the chassis rear apron, A1 and A2 are tuned to 26.1MC; on all other chassis, A1 and A2 are tuned to 26.3MC.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube, (V2). Low side to chassis.	26.3MC or 26.1MC (See Note Above)	Any	DC probe to Point (A). Common to chassis.	A1, A2	Adjust for maximum deflection.
2.	"	"	24.75MC	"	"	A3	"
3.	"	"	23.5MC	"	"	A4, A5	"
4.	"	"	22.4MC	"	"	A6	Adjust for MINIMUM deflection.

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	Direct	High side to an ungrounded tube shield floating over dummy converter tube, (V2). Low side to chassis.	25MC (10MC SWP)	22.25MC 26.75MC	Any	Vert. amp. thru 10KΩ to Point (A). Low side to chassis.		Check for response curve similar to figure 1. If necessary retouch A1 thru A5 for proper response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
6.	.01MFD	High side to Pin 1 (cathode) of 6AL5, (V7). Low side to chassis.	4.5MC (Unmod.)	Any	DC probe to Point (B). Common to chassis.	A7, A8, A9, A10, A11, A12	Adjust for maximum deflection. Notice that A7 has a very broad peak.
7.	"	"	"	"	DC probe to Point (C). Common to Point (D).	A7	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Continue with step 9.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	.01MFD	High side to Pin 1 (grid) of 6AU6, (V12). Low side to chassis.	4.5MC (450KC SWP)	4.5MC	Any	Vert. amp. thru 10KΩ to Point (B). Low side to chassis.	A8, A9, A10	Disconnect stabilizer capacitor C3. Adjust for maximum amplitude and symmetry as per figure 2.
7.	"	High side to Pin 1, (cathode) of 6AL5, (V7). Low side to chassis.	"	"	"	"	A11, A12	"
8.	"	"	"	"	"	Vert. amp. to Point (C). Low side to chassis.	A7	Reconnect capacitor C3. Adjust A7 so 4.5MC occurs at center of crossover lines as per figure 3. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines.

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.
Complete oscillator alignment may not be necessary. If the oscillator seems to be off-frequency approximately the same amount for a majority of the channels it may be possible to correct them in one step, using A13. It should be noted that this is an all-channel oscillator circuit adjustment and should not be adjusted for any individual channel. If adjustment of A13 will not bring all channels well within the range of the fine tuning control, it will be necessary to adjust the channel strip adjustment for each channel that is off-frequency. The channel strip adjustments are reached through a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible through this hole as the channel switch is tuned to each channel.
Mid-position on the fine tuning control is the point where the "tooth" on the cam points straight down.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC SWP)	211.25MC 215.75MC	13	Vert. amp. thru 10KΩ to Point (A). Low side to chassis.	A14	Adjust to place sound marker as shown in figure 4. The video marker should be at 50%.
			207MC (10MC SWP)	205.25MC 209.75MC	12		A15	
			201MC (10MC SWP)	199.25MC 203.75MC	11		A16	
			195MC (10MC SWP)	193.25MC 197.75MC	10		A17	
			189MC (10MC SWP)	187.25MC 191.75MC	9		A18	
			183MC (10MC SWP)	181.25MC 185.75MC	8		A19	
			177MC (10MC SWP)	175.25MC 179.75MC	7		A20	
			85MC (10MC SWP)	83.25MC 87.75MC	6		A21	
			79MC (10MC SWP)	77.25MC 81.75MC	5		A22	
			69MC (10MC SWP)	67.25MC 71.75MC	4		A23	
			63MC (10MC SWP)	61.25MC 65.75MC	3		A24	
			57MC (10MC SWP)	55.25MC 59.75MC	2		A25	

ALIGNMENT INSTRUCTIONS (CONT.)

RF AND MIXER ALIGNMENT

Leave the 3 volt bias connected as during video IF alignment.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC SWP)	205.25MC 209.75MC	12	Vert. amp. thru 10KΩ to Point (E). Low side to chassis	A26, A27, A28	Adjust for response curve similar to figure 5. with markers above 90%.
10.	"	"	213MC (10MC SWP)	211.25MC 215.75MC	13	"		Check all channels for response similar to figure 5. If markers fall below 70% on any channel, make slight adjustment of A26, A27 and A28 with channel switch set for that channel. Recheck all channels to see that they have not been seriously effected.
			201MC (10MC SWP)	199.25MC 203.75MC	11			
			195MC (10MC SWP)	193.25MC 197.75MC	10			
			189MC (10MC SWP)	187.25MC 191.75MC	9			
			183MC (10MC SWP)	181.25MC 185.75MC	8			
			177MC (10MC SWP)	175.25MC 179.75MC	7			
			85MC (10MC SWP)	83,25MC 87.75MC	6			
			79MC (10MC SWP)	77.25MC 81.75MC	5			
			69MC (10MC SWP)	67.25MC 71.75MC	4			
			63MC (10MC SWP)	61.25MC 65.75MC	3			
			57MC (10MC SWP)	55.25MC 59.75MC	2			

INTERCARRIER BUZZ REDUCTION

After alignment is completed, turn the set on and tune in a strong TV station. Retouch the ratio detector transformer secondary adjustment, (A7), for MINIMUM intercarrier buzz.

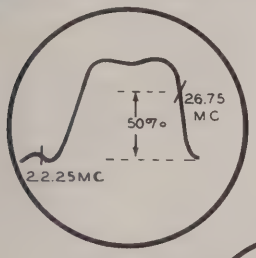


FIG. 1

FIG. 2

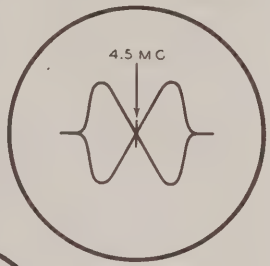


FIG. 3

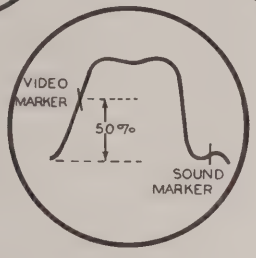


FIG. 4

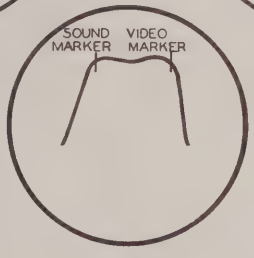


FIG. 5

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	-.3VDC	0V	6.3VAC	0V	95VDC	95VDC	0V		
V 2	6J6	90VDC	80VDC	6.3VAC	0V	-1.4VDC	§-5.5VDC	0V		
V 3	6AU6	-.2VDC	0V	6.3VAC	0V	120VDC	120VDC	1.3VDC		
V 4	6AU6	-.2VDC	0V	6.3VAC	0V	120VDC	120VDC	.7VDC		
V 5	6AU6	-.2VDC	0V	6.3VAC	0V	120VDC	120VDC	.7VDC		
V 6	6AU6	0V	0V	6.3VAC	0V	120VDC	120VDC	1VDC		
V 7	6AL5	0V	0V	6.2VAC	0V	.6VDC	0V	-.4VDC		
V 8	6AG5	-.4VDC	0V	6.3VAC	0V	70VDC	75VDC	0V		
V 9	6AG5	70VDC	125VDC	6.3VAC	0V	-.2VDC	250VDC	125VDC		
V 10	6C4	250VDC	0V	0V	6.3VAC	250VDC	§.63VDC	110VDC		
V 11	6K6GT	0V	0V	280VDC	125VDC	10VDC	0V	6.3VAC	42VDC	
V 12	6BH6	#.1VDC	#.1VDC	6.3VAC	0V	#118VDC	#118VDC	#1VDC		
V 13	6AU6	#-.5VDC	#0V	6VAC	0V	#118VDC	#118VDC	#0V		
V 14	6T8	-.3VDC	-.9VDC	-.3VDC	0V	6VAC	-.5VDC	0V	-.7VDC	60VDC
V 15	6V6GT	0V	6.3VAC	235VDC	225VDC	0V	250VDC	0V	12VDC	
V 16	12AU7	18VDC	-5VDC	0V	0V	0V	90VDC	18VDC	18VDC	6.3VAC
V 17	6J5	0V	6.3VAC	60VDC 150VDC	0V	-3.5VDC	0V	0V	0V	
V 18	6S4	0V	12VDC 35VDC	0V	6.3VAC	0V	0V	0V	0V	380VDC
V 19	6AL5	0V	0V	0V	6.3VAC	7.6VDC	0V	-4.7VDC		
V 20	6SN7GT	.6VDC	300VDC	13VDC	-1.2VDC	118VDC	13VDC	6.3VAC	0V	
V 21	6CD6G	0V	0V	25VDC	0V	0V	0V	6.3VAC	155VDC	*
V 22	6W4GT	0V	0V	470VDC	0V	320VDC	320VDC	470VDC	470VDC	
V 23	1B3GT	* DO NOT MEASURE								
V 24	6X5GT	0V	6.3VAC	190VAC	0V	190VAC	0V	0V	190VDC	
V 25	5U4G	0V	350VDC	0V	325VAC	6.3VAC	325VAC	0V	350VDC	
V 26	16RP4A	0V	.5VDC	PIN 10 330VDC	PIN 11 33VDC	PIN 12 6.3VAC				

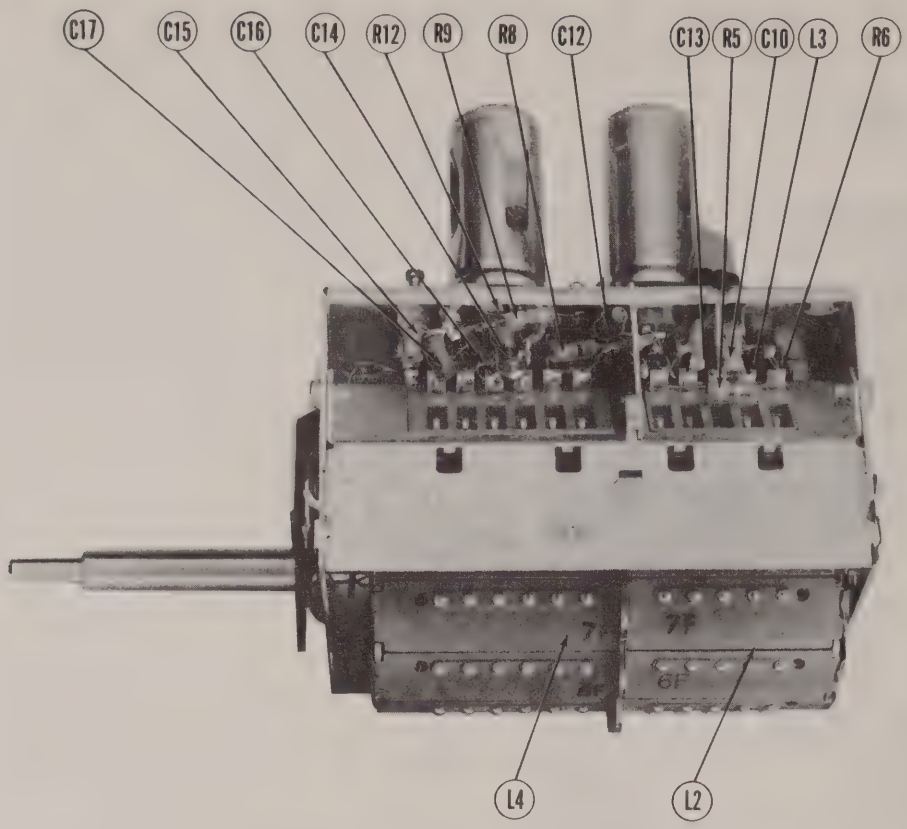
ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED
§ TAKEN WITH VACUUM TUBE VOLTMETER
# MEASURED FROM 125V POINT

RESISTANCE READINGS

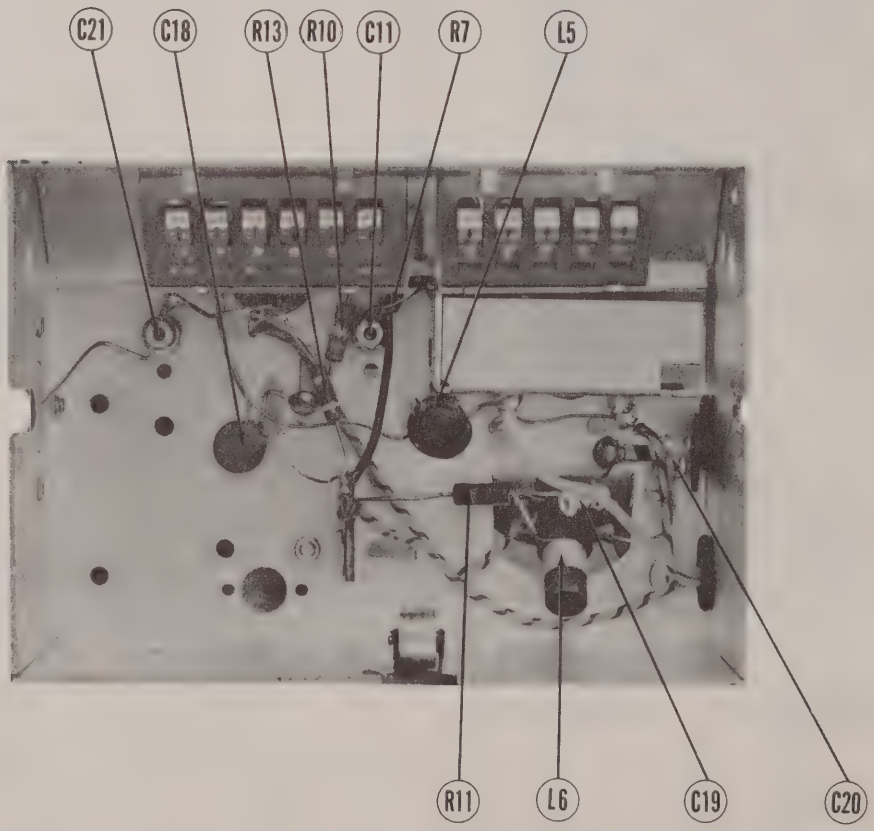
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	160KΩ	0Ω	.1Ω	0Ω	†3.3KΩ	†3.3KΩ	0Ω		
V 2	6J6	†5.6KΩ	†16KΩ	.1Ω	0Ω	220KΩ	10KΩ	0Ω		
V 3	6AU6	120KΩ	0Ω	.1Ω	0Ω	†2KΩ	†2KΩ	270Ω		
V 4	6AU6	120KΩ	0Ω	.1Ω	0Ω	†2KΩ	†2KΩ	82Ω		
V 5	6AU6	120KΩ	0Ω	.1Ω	0Ω	†2KΩ	†2KΩ	82Ω		
V 6	6AU6	2.3Ω	0Ω	.1Ω	0Ω	†2KΩ	†2KΩ	100Ω		
V 7	6AL5	2.5Ω	0Ω	.5Ω	0Ω	1Meg	0Ω	5KΩ		
V 8	6AG5	5KΩ	0Ω	.1Ω	0Ω	†12KΩ	†9.5KΩ	0Ω		
V 9	6AG5	†50KΩ	†900Ω	.1Ω	0Ω	110KΩ	¶1.1KΩ	†900Ω		
V 10	6C4	¶1.1KΩ	Inf.	0Ω	.1Ω	¶1.1KΩ	1Meg	12KΩ		
V 11	6K6GT	Inf.	0Ω	¶3.2KΩ	†1KΩ	1Meg	Inf.	.1Ω	3.2KΩ	
V 12	6BH6	†900Ω	†1000Ω	.1Ω	0Ω	¶2.2KΩ	¶2.2KΩ	†900Ω		
V 13	6AU6	†480KΩ	†900Ω	.5Ω	0Ω	¶2.2KΩ	¶2.2KΩ	†1KΩ		
V 14	6T8	Inf.	35KΩ	Inf.	0Ω	.5Ω	33KΩ	0Ω	10Meg	¶500KΩ
V 15	6V6GT	Inf.	.1Ω	¶1.7KΩ	¶10KΩ	470KΩ	¶11KΩ	0Ω	330Ω	
V 16	12AU7	†330KΩ	600KΩ	0Ω	0Ω	0Ω	†4.8KΩ	†330KΩ	1.8KΩ	.1Ω
V 17	6J5	0Ω	.1Ω	▲3.2Meg 1.2Meg	Inf.	1.8Meg	Inf.	0Ω	0Ω	
V 18	6S4	Inf.	5.5KΩ 700Ω	2.2Meg	.1Ω	0Ω	.2.2Meg	Inf.	Inf.	▲4.2KΩ
V 19	6AL5	27KΩ	27KΩ	0Ω	.1Ω	4.7Meg	0Ω	4.7Meg		
V 20	6SN7GT	5Meg	¶4KΩ	1.5KΩ	100KΩ	¶270KΩ	1.5KΩ	0Ω	.1Ω	
V 21	6CD6G	Inf.	0Ω	230Ω	Inf.	470KΩ	470KΩ	.1Ω	¶24KΩ	▲55Ω
V 22	6W4GT	Inf.	Inf.	800KΩ	Inf.	¶80Ω	¶100Ω	800KΩ	800KΩ	
V 23	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	▲420Ω
V 24	6X5GT	Inf.	.1Ω	15Ω	Inf.	15Ω	Inf.	0Ω	25KΩ	
V 25	5U4G	Inf.	120KΩ	Inf.	30Ω	.1Ω	30Ω	.2Ω	120KΩ	
V 26	16RP4A	0Ω	1.2Meg	PIN 10 ¶80Ω	PIN 11 85KΩ	PIN 12 .1Ω				

ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED
† MEASURED FROM PIN 8 OF V24
¶ MEASURED FROM PIN 8 OF V25
▲ MEASURED FROM PIN 3 OF V22

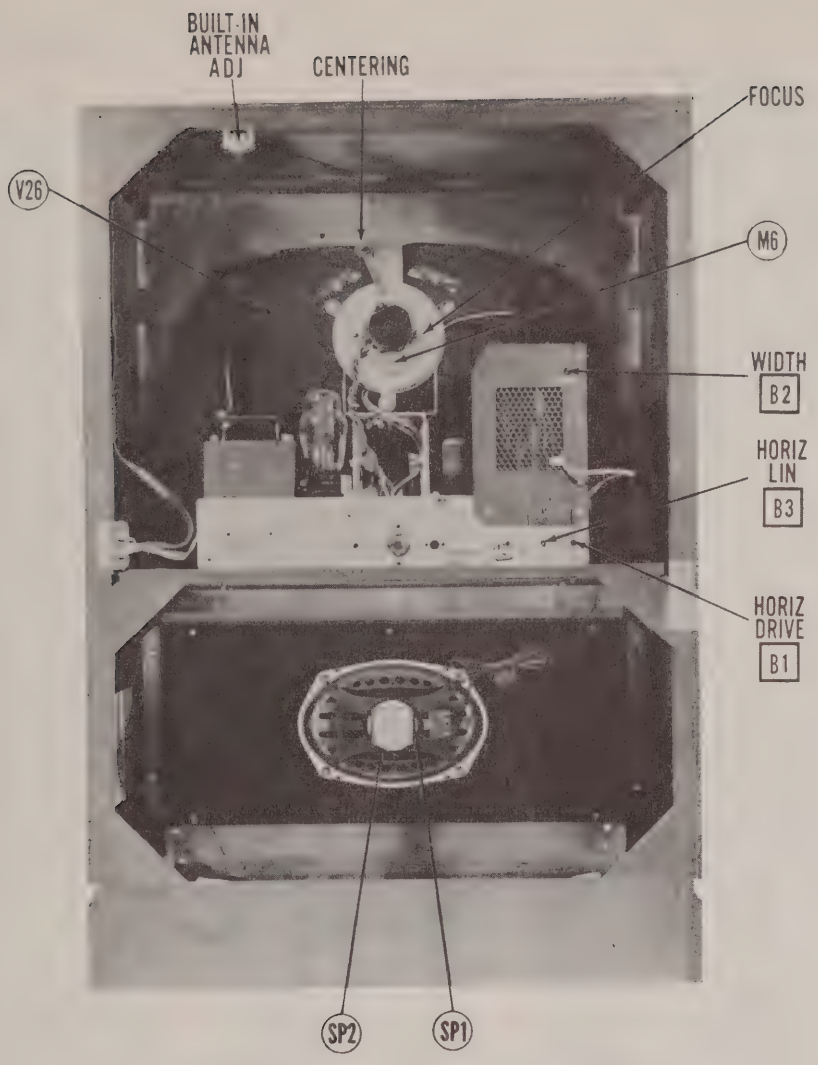
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Adjust the horizontal hold control until the picture synchronizes horizontally.

Adjust the horizontal drive trimmer, (B1), counter clockwise as far as possible without crowding or vertical lines appearing in the picture.

Adjust the width slug, (B2), until the picture fills the mask horizontally.

Adjust the horizontal linearity slug, (B3), until the picture is symmetrical from left to right. Slight readjustment of B1 may be required for optimum results.

DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove six wood screws securing rear cover in place. Remove rear cover.
3. Disconnect built-in antenna.
4. Remove antenna terminal strip.
5. Disconnect speaker.
6. Remove six hex head bolts from chassis. Remove chassis.
7. Remove four hex nuts from speaker. Remove speaker.

NOTE: FOR PICTURE TUBE REMOVAL, IT IS NECESSARY TO REMOVE THE CHASSIS AS OUTLINED ABOVE.

PARTS LIST AND DESCRIPTIONS (Continued)

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: Stewart-Warner PART No	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1A	RF Amplifier	6CB6	6CB6	6CK	
B	RF Amplifier	6BC5	6BC5	7BD	
C	RF Amplifier	6AG5	6AG5	7BD	
V2	Converter	6J6	6J6	7BF	
V3	1st Video IF Amp	6AU6	6AU6	7BK	
V4	2nd Video IF Amp.	6AU6	6AU6	7BK	
V5	3rd Video IF Amp.	6AU6	6AU6	7BK	
V6	4th Video IF Amp.	6AU6	6AU6	7BK	
V7	Vide. Detector - DC Restorer	6AL5	6AL5	6BT	
V8A	Video Amplifier	6AG5	6AG5	6BT	
B	Video Amplifier	6AU6	6AU6	7BK	
V9A	Keyed AGC	6AG5	6AG5	7BD	
B	Keyed AGC	6AU6	6AU6	7BK	
V10	Cathode Follower	6C4	6C4	6BG	
V11	Video Output	6K6GT	6K6GT	7S	
V12A	1st Sound IF Amp.	6BH6	6BH6	7CM	
B	1st Sound IF Amp.	6AU6	6AU6	7BK	
V13A	2nd Sound IF Amp.	6AU6	6AU6	7BK	
B	2nd Sound IF Amp.	6BH6	6BH6	7CM	
V14	Dynamic Limiter - Ratio Detector - AF Amplifier	6T8	6T8	9E	
V15	Audio Output	6V6GT	6V6GT	7AC	
V16	Sync Clipper - Sync Separator - Sync Phase Inv.	12AU7	12AU7	9A	
B	1st Sound IF Amp.	6J5	6J5	6Q	
V17	Vert. Oscillator	6J5	6J5	6Q	
V18A	Vertical Amplifier	6S4	6S4	9AC	
B	Vertical Amplifier	6SN7GT	6SN7GT	8BD	
V19	Horiz. Phase Det.	6AL5	6AL5	6BT	
V20	Horiz. Mult	6SN7GT	6SN7GT	8BD	
V21	Horiz. Output	6CD6G	6CD6G	5BT	
V22	Damper	6W4GT	6W4GT	4CG	
V23	H V Rectifier	1B3GT	1B3GT	3C	
V24	L V Rectifier	6X5GT	6X5GT	6S	
V25	L V Rectifier	5U4G	5U4G	5T	
V26A	Picture Tube	16RP4A	16RP4A	12D	
B	Picture Tube	16RP4	16RP4	12D	
C	Picture Tube	16TP4	16TP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No	RATING: CAP	RATING: VOLT	REPLACEMENT DATA: Stewart-Warner PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SPRAGUE PART No	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	450	508072	AFH888J		UPT44445		TVL-3787	▲ Filter
B	40	450							■ Filter
C	40	450							▲ Filter
C2A	20	300	508073	AFH1242G		UPT6345		TVL-2579	▲ Filter
B	60	300							▲ Filter
C3	4	150	502547	PRS150/4		BR415		TVA-1402	Stabilizing Cap
C4	4	450	504719	PRS450/4		BR445		TVA-1702	Decoupling
C5	50	25	502527	PRS25/50		BR502A		TVA-1206	Output Cathode
C6	10	600	508680	PRS700/10		BRHV610		TVA-1902	Decoupling
C7	100	50	508682	PRS50/100		BRH50I		TVA-1310	Vert. Output Cath.
C8	5	50	508684	PRS150/4		BR550		TVA-1303	Horiz. Output Cath.
C9	10	150	505174	PRS150/12		BR10I5		TVA-1406	Dyn. Limiter Cap
C10	3-9		509064						Variable Trimmer
C11	.5-3		507968		829-3				Variable Trimmer
C12	120		513439	SI120	D6-121		GP2K-121	19C29	RF Amp. Dec.
C13	1000		513009	SI1000	D6-102		80I-001	19C1	RF Amp. Fil.
C14	100		513440	SI100N750	TCN-100		N750L-101	29C16	RF Coupling
C15	.5-3		507968		829-3				Variable Trimmer
C16	20		513441	SI20NPO	TCZ-20		NPOK-200	19C4	Osc. Grid Cap
C17	10		513442	SI10N750	TCN-10		N750K-100	19C4	Fixed Trimmer
C18A	1000		508578	BPD-2X001	DD-2X001		812-001	29C7	RF Bypass
B	1000								Conv. Filament
C19	10		153444	SI10NPO	TCZ-10		NPOK-100	19C3	Fixed Trimmer
C20	120		512542	SI120	D6-121		GP2K-121	19C29	IF Coupling
C21	.5-3		509063		829-3				Variable Trimmer
C22	1000		513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	AGC Filter
C23	1000		513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	1st V. IF Dec.
C24	1000		513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	1st V. IF Fil.
C25	240	500	512532						Fixed Trimmer
C26	82		513016	SI82	TCZ-82	5W5TI	GP1K-820	19C11	IF Coupling
C27	1000		513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	AGC Filter
C28	1000		513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	2nd V. IF Dec.
C29	1000		513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	2nd V. IF Fil.
C30	1000		513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	RF Bypass
C31	82		513016	SI82	TCZ-82	5W5TI	GP1K-820	19C11	IF Coupling
C32	1000		513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	AGC Filter
C33	1000		513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	3rd V. IF Dec.
C34	1000		513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	3rd V. IF Fil.
C35	82		513016	SI82	TCZ-82	5W5TI	GP1K-820	19C11	IF Coupling
C36	1000		513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	4th V. IF Dec.
C37	1000		513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	4th V. IF Fil.
C38	5		513432	SI5NPO	TCZ-4.7	5W5V5	NPOK-050	MS-55	V. Diode Filter
C39	5000		513013	BPD-005	DD-502	1D5D5	811-005	29C1	V. Det.-DC Res. Fil.
C40	25	200	512045	P488-25		GT2P25		2TM-P25	V. Amp. Screen
C41	05	200	512027	P288-05	DF-503	PTE4S5		2TM-S5	AGC Filter
C42	25	200	512945	P488-25		GT2P25		2TM-P25	AGC Filter
C43	100		512603	SI100	D6-101	5W5TI	GP1K-101	19C11	Peaking
C44	1	200	512033	P288-1	DF-104	PTE4P1		2TM-P1	Video Coupling
C45	05	200	512027	P288-05	DF-503	PTE4S5		2TM-S5	Video Coupling
C46	05	600	512031	P688-05	DF-503	PTE6S5		6TM-S5	Video Coupling
C47	05	600	512031	P688-05	DF-503	PTE6S5		6TM-S5	Video Coupling
C48	2.2		5.3008		TCZ-2.2				S. IF Coupling
C49	5000		513013	BPD-005	DD-502	1D5D5	811-005	29C1	1st S. IF Dec.
C50	1000		513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	1st S. IF Fil.
C51	5000		513013	BPD-005	DD-502	1D5D5	811-005	29C1	1st S. IF Dec.
C52	5000		513013	BPD-005	DD-502	1D5D5	811-005	29C1	RF Bypass
C53	220		513018	SI220	D6-221	5W3T2S	GP2K-221	19C13	RF Bypass
C54	47		513433	SI47	D6-470	5W5Q5	GP1K-470	19C25	S. IF Coupling
C55	5000		513013	BPD-005	DD-502	1D5D5	811-005	29C1	2nd S. IF Dec.

CAPACITORS (CONT.)

ITEM No	RATING: CAP	RATING: VOLT	REPLACEMENT DATA: Stewart-Warner PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C56	5000		513013	BPD-005	DD-502	1D5D5	811-005	29C1	2nd S. IF Fil.
C57	1000		513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	S. IF Coupling
C58	1500		513010	SI1500	D6-152	1W5DI5	GP2L-152	29C8	RF Bypass
C59	220	500	512527	SI220	D6-221	5W5T2S	GP2K-221	19C13	Diode Load Cap
C60	1500		513010	SI1500	D6-152	1W5DI5	GP2L-152	29C8	De-emphasis
C61	05	200	512027	P288-05	DF-503	PTE4S5		2TM-S5	Audio Coupling
C62	.005	600	512007	P688-005	D6-502	PTE6D5	811-005	6TM-D5	Tone Comp.
C63	.005	600	512007	P688-005	D6-502	PTE6D5	811-005	6TM-D5	Audio Coupling
C64A	250		† 505858	SI250	†PC-70	5W5T2S	GP2K-251	1FM-325	AF Amp. Plate
B	5000			BPD-005		1D5D5	811-005	29C1	Audio Coupling
C65	1500		513010	SI1500	D6-152	1W5DI5	GP2L-152	29C8	Decoupling
C66	.002	600	512003	P688-002	D6-202	PTE8D2	GP2-333-202	6TM-D2	Output Plate
C67	.25	200	512045	P488-25		GT2P25		2TM-P25	Sync. Coupling
C68A	10000		† 508062	P688-01		PTE6S1	GP2-333-103	6TM-S1	Vert. Sync. Coupling
B	2000			P688-002	•PC-100	PTE6D2	GP2-333-202	6TM-D2	Integrator Net
C	5000			P688-005	DD-103	PTE6D5	GP2-333-502	6TM-D5	Integrator Net
D	5000			P688-005		PTE6D5	GP2-333-502	6TM-D5	Integrator Net
C69	4700	1000	512533	1467-005	D6-472	1D5D5	GP2-333-472	1FM-25	Vert. Osc. Grid
C70	.1	600	512037	P688-1	DF-104	PTE6P1		6TM-P1	Vert. Sweep Coupling
C71	.05	600	512308	P688-05		PTE6S5		6TM-S5	Vert. Discharge
C72	.05	600	512031	P688-05		PTE6S5		6TM-S5	Integrator Net
C73	.02	600	512019	P688-02	DF-203	PTE6S2		6TM-S2	Vert. Sweep Coupling
C74	1000		513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	Hori. Sync. Coupling
C75	1000		513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	Horiz. Sync. Coupling
C76	.05	600	512031	P688-05	DF-503	PTE6S5		6TM-S5	Horiz. Feedback
C77	.01	600	512013	P688-01	D6-103	PTE6S1	821-01	6TM-S1	Horiz. AFC Filter
C78	5000		513013	BPD-005	DD-502	1D5D5	811-005	29C1	Horiz. AFC Filter
C79	.05	200	512027	P288-05	DF-503	PTE4S5		2TM-S5	Horiz. AFC Filter
C80	3900	500	512540	1464-004		1DR5D4		MS-24	Fixed Trimmer
C81	330	500	512541	SI330	D6-331	5W5T3	GP2K-331	1FM-335	Horiz. MV Feedback
C82	390	500	512535	1469-0004	D6-391	5R5T4	GP2K-391	MS-34	Horiz. Discharge
C83	270	500	512536	1468-00025	D6-271	5W5T2S	GP2K-271	1FM-325	Horiz. Sweep Coupling
C84	.05	600	512031	P688-05	DF-503	PTE6S5		6TM-S5	Horiz. Output Screen
C85	.3	1500	513025						Horiz. Feedback
C86	.05	600	512031	P688-05		PTE6S5		6TM-S5	Damper Filter
C87	.05	600	512031	P688-05		PTE6S5		6TM-S5	Damper Filter
C88	.1	600	512037	P688-1	DF-104	PTE6P1		6TM-P1	Horiz. Sweep Coupling §
C89	.003	600	512005	P688-003	D6-302	PTE6D3	GP2-333-302	6TM-D3	Fixed Trimmer *
C90	500	20000	508888	HV20C	TV2-502				HV Filter
C91	1000		513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	Filament Bypass #
C92	.01	400	512255	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Line Filter
C93	.01	400	512255	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Line Filter
C94	.02	600	512019	P688-02		PTE6S2		6TM-S2	Vert. Discharge *

* Not used in all models.
† Items C64A, C64B, R63A and R63B are combined into one unit.
‡ Items C68A, C68B, C68C, C68D, R72A, R72B and R72C are combined into one unit.
# Some models use 220MMF in this application.
§ Some models use .25MFD in this application.
• Use CRL Part # DD-103 in series with #1 lead of CRL Part # PC-100.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Stewart-Warner PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	REPLACEMENT DATA: CENTRALAB PART No.	INSTALLATION NOTES
R1A	3000Ω	2	508892				Contrast Control - Wire Wound - Front
B	1Meg	½					Volume Control And SW-Tapped ⓐ 200KΩ Rear
R2A	50KΩ	½	508889	Q11-123	AG-44-S	AN-31	Brightness Control
B	Shaft		Not req.	Not req.	RS-2	AK-4	Attach to R2A Per Instructions
R3A	2.5Meg	½	508893				Height Control - Front
B	1Meg	½					Vertical Hold Control - Rear
R4A	5000Ω	½	508891	Q11-114	AM-19-S	AN-10	Vertical Linearity Control
B	Shaft		Not req.	Not req.	RS-2	AK-4	Attach to R4A Per Instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Stewart-Warner PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ± 10% UNLESS OTHERWISE SPECIFIED
R5	3900Ω 20%	½	510147	BTS-3900	Antenna Coil Shunt
R6	47KΩ 20%	½	510167	BTS-47K	AGC Network
R7	2200Ω 20%	½	510143	BTS-2200	RF Amp. Decoupling
R8	10KΩ 20%	½	510155	BTS-10K	RF Coil Shunt
R9	4700Ω 20%	½	510149	BTS-4700	Mixer Grid
R10	220KΩ 20%	½	510179	BTS-220K	Mixer Grid
R11	15KΩ 20%	½	510158		Mixer Plate
R12	10KΩ	½	510155	BTS-10K	Osc. Grid
R13	4700Ω	½	510149	BTS-4700	Osc. Plate
R14	1000Ω	½	510137	BTS-1000	AGC Network
R15	6800Ω	½	510151		1st Video IF Amp. Grid
R16	270Ω	½	510128	BTS-270	1st Video IF Amp. Cathode
R17	1000Ω	½	510137	BTS-1000	1st Video IF Amp. Decoupling
R18	1000Ω	½	510137	BTS-1000	AGC Network
R19	8200Ω	½	510153		2nd Video IF Amp. Grid
R20	82Ω	½	510117	BTS-82	2nd Video IF Amp. Cathode
R21	1000Ω	½	510137	BTS-1000	2nd Video IF Amp. Decoupling
R22	1000Ω	½	510137	BTS-1000	AGC Network
R23	8200Ω	½	510153		3rd Video IF Amp. Grid
R24	82Ω	½	510117	BTS-82	3rd Video IF Amp. Cathode
R25	1000Ω 5%	½	510137	BTS-1000-5%	3rd Video IF Amp. Decoupling
R26	6800Ω	½	510151		4th Video IF Transformer Shunt
R27	100Ω	½	510119	BTS-100	4th Video IF Amp. Cathode
R28	1000Ω	½	510137	BTS-1000	4th Video IF Amp. Decoupling
R29	8200Ω	½	510153		5th Video IF Transformer Shunt
R30	4700Ω	½	510148	BTS-4700	Video Detector Diode Load
R31	33KΩ 20%	½	510164	BTS-33K	Keyed AGC Grid
R32	100KΩ 20%	½	510173	BTS-100K	AGC Network
R33	10KΩ 20%	½	510155	BTS-10K	AGC Network
R34	15KΩ 20%	1	510257	BTA-15K	Voltage Divider
R35	8200Ω	1	510253	BTA-8200	Video Amp. Screen
R36	47KΩ	½	510166	BTS-47K	Video Peaking Coil Shunt
R37	5600Ω	½	510150	BTS-5600	Video Amp. Plate
R38	5600Ω	½	510150	BTS-5600	Video Amp. Plate
R39	1Meg	½	510191	BTS-1Meg	Cathode Follower Grid
R40	12KΩ	2	510356	BTB-12K	Cathode Follower Cathode - See Note 5
R41	1Meg	½	510191	BTS-1Meg	Video Output Grid
R42	270Ω	½	510126	BTS-270	Video Output Cathode
R43	1500Ω	2	510339	BTB-1500	Video Output Plate

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Stewart-Warner PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
R44	1500Ω	2	510339	BTB-1500	Video Output Plate
R45	12KΩ	½	510723	BTS-12K	Video Peaking Coil Shunt
R46	12KΩ	½	510156	BTS-12K	Isolation
R47	1Meg 20%	½	510191	BTS-1Meg	DC Restorer Diode Load
R48	2200Ω 20%	½	510143	BTS-2200	Vertical Retrace Blanking Network
R49	18KΩ 20%	½	510159	BTS-18K	Voltage Divider
R50	82KΩ	½	510171	BTS-82K	Voltage Divider
R51	100KΩ 20%	½	510173	BTS-100K	Picture Tube Grid
R52	22KΩ 20%	½	510161	BTS-22K	Picture Tube Cathode
R53	82Ω	½	510117	BTS-82	1st Sound IF Amp. Cathode
R54	1000Ω	½	510137	BTS-1000	1st Sound IF Amp. Screen
R55	470KΩ	½	510185	BTS-470K	2nd Sound IF Amp. Grid
R56	82Ω	½	510117	BTS-82	2nd Sound IF Amp. Cathode
R57	1000Ω	½	510137	BTS-1000	2nd Sound IF Amp. Decoupling
R58	18KΩ	½	510159	BTS-18K	Ratio Detector Diode Load
R59	18KΩ	½	510159	BTS-18K	Ratio Detector Diode Load
R60	22KΩ	½	510160	BTS-22K	De-emphasis
R61	68KΩ	½	510170	BTS-68K	Tone Comp.
R62	10Meg	½	510197	BTS-10Meg	AF Amp. Grid
R63A	470KΩ	½	† 505858	BTS-470K	AF Amp. Plate
B	470KΩ	½		BTS-470K	AF Amp. Output Grid
R64	330Ω	1	510227	BTA-330	AF Amp. Output Cathode
R65	8200Ω	½	510153	BTS-8200	Decoupling
R66	33KΩ	½	510163	BTS-33K	Limiter Load
R67	560KΩ	½	510180	BTS-560K	Sync. Sep. Grid - See Note 2
R68	330K	½	510181	BTS-330K	Sync. Sep. Plate
R69	1800Ω 5%	½	510739	BTS-1800-5%	Sync. Phase Inverter Cathode
R70	1800Ω 5%	½	510739	BTS-1800-5%	Sync. Phase Inverter Plate
R71	1800Ω 5%	½	510739	BTS-1800-5%	Sync. Phase Inverter Plate
R72A	22KΩ	½	† 508062	BTS-22K	Integrator
B	8200Ω	½		BTS-8200	Integrator
C	8200Ω	½		BTS-8200	Integrator
R73	1.5Meg 5%	½	510721	BTS-1.5Meg-5%	Vertical Osc. Coil
R74	1.2Meg	½	510738	BTS-1.2Meg	Vertical Osc. Plate
R75	6.8Meg 20%	½	510196	BTS-6.8Meg	Voltage Divider
R76	100KΩ 20%	½	510172	BTS-100K	Voltage Divider
R77	680Ω	½	510151	BTS-680	Vertical Peaking
R78	2.2Meg 20%	½	510193	BTS-2.2Meg	Vertical Output Grid
R79	68Ω	½	510133	BTS-680	Vertical Output Cathode
R80	3000Ω 5%	2	510713		Decoupling - See Note 4
R81	100KΩ 20%	½	† 510172	BTS-100K	Horiz. Phase Detector Diode Load
R82	100KΩ 20%	½	510172	BTS-100K	Horiz. Phase Detector Diode Load
R83	4.7Meg	½	510195	BTS-4.7Meg	Horiz. Phase Detector Diode Load
R84	27KΩ	½	510162	BTS-27K	Horiz. Phase Detector Diode Load
R85	470KΩ 20%	½	510185	BTS-470K	Horiz. AFC Filter
R86	1500Ω	½	510139	BTS-1500	Horiz. MV Cathode
R87	3900Ω	½	510174	BTS-3900	Horiz. MV Plate
R88	100KΩ 20%	½	510172	BTS-100K	Horiz. MV Grid
R89	270KΩ	½	510180	BTS-270K	Horiz. MV Plate
R90	68Ω 20%	½	510116		Parasitic Supp.
R91	470KΩ	½	510179	BTS-470K	Horiz. Output Grid - See Note 3
R92	22ΩΩ	5	510716	1 3/4A-225	Horiz. Output Cathode - Wire Wound
R93	12KΩ	2	510356	BTB-12K	Horiz. Output Screen
R94	12KΩ	2	510356	BTB-12K	Horiz. Output Screen - See Note 1
R95	10KΩ	1	510254	BTA-10K	Horiz. Feedback
R96	68ΩΩ	½	510133	BTS-680	Damping - See Note 1
R97	3.3Ω	½	510725		HV Rectifier Filament - See Note 1
R98	1Meg	2	510191		HV Filter
R99	1000Ω	10	510754	1 3/4A-1000	Filter - Wire Wound
R100	850Ω	5	510726		Filter - Wire Wound
R101	100Ω	2	510319	BW-2-100	Surge Limiter
R102	220KΩ 20%	½	510179	BTS-220K	Isolation
R103	39KΩ	1	510265	BTA-39K	Horizontal Output Screen - See Note 1
R104	4.3Ω		510704	BW-1-4.3	Series Pilot Light - Wire Wound

† Items R63A, R63B, C64A and C64B are combined into one unit.
‡ Items R72A, R72B, R72C, C68A, C68B, C68C and C68D are combined into one unit.

Note 1. Not used in all models.
Note 2. Some models use 270KΩ resistor in this application.
Note 3. Some models use 220KΩ resistor in this application.
Note 4. Some models use 7500Ω resistor in this application.
Note 5 Some models use series resistors in this application to obtain desired value.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: Stewart-Warner PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.
T1	117VAC ⓐ 2.1A	680VCT .230ADC	400VCT .075ADC	5VAC ⓐ 3A SEC. 4 6.3VAC ⓐ10.4A	50702			

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: Stewart-Warner PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	NOTES
T2	153Ω	940Ω	508076	A-8111 ①	A-3000 ①	TB0-1 ①	Vert. Block Osc. Trans.
T3	440Ω Tap 44Ω	7.2Ω Tap 4.9Ω	508679 Or 508971	A-8130	HV0-6		Horiz. Output Trans
		SEC. 2 0Ω					
T4	1.1KΩ Tap 13Ω		508956	A-8123	A-3037 ①		Vert. Output Trans.
T5 A	13Ω		508675	DY-7	MDF-70		Horiz. Deflection Coil
B	49Ω						Vertical Deflection Coil

① Drill one new mounting hole.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: Stewart-Warner PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	INSTALLATION NOTES
T6	6KΩ	3.5Ω	630Ω	.9Ω	505912	A-3823	A-3019	R0-9 ①	① Drill one new mounting hole.

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	Stewart-Warner PART No.	JENSEN PART No.	QUAM PART No.	
SP1A	PM	3.5Ω	508174 ②	ST-810 Mod. P69-V	69A2	② Used in Models 9120-B, 9120-C, 9120-D, 9120-E and 9120-F
B	PM	3.5Ω	508157 ③	ST-108 Mod. P6-X	6A15	③ Used in Model 9120-A
	CONE DIA.	V. C. DIA.				
SP2A	6"X9"	9/16"				
B	6"	9/16"				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	Stewart - Warner PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.230A	73Ω	2.9 Henries	508341	C-2325	C-2991 ①	TR-3300①	① Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	Stewart-Warner PART No.	MEISSNER PART No.	IRC PART No.	
L2	Ant. Coil	0Ω	0Ω	507963			Channel 13
L3	Fil. Choke	0Ω		507970			
L4	RF, Mixer Grid And Osc. Coils	0Ω		507983			Channel 13
L5	Fil. Choke	0Ω		507971			
L6	1st Video IF	.8Ω		509061			
L7	Fil. Choke	0Ω		507584			
L8	Sound Atten. Trap	0Ω		509056			
L9	2nd Video IF	.2Ω		507343			
L10	3rd Video IF	.2Ω		507343			
L11	Fil. Choke	0Ω		507584			
L12	4th Video IF	.2Ω		507343			
L13	RF Choke	2.5Ω		507367			
L14	Fil. Choke	.22Ω		507587		CLA	.47 Microhenries
L15	5th Video IF	.2Ω	2.5Ω	507591			
L16	Fil. Choke	.8Ω		507586		CLA	1 Microhenry
L17	Peaking	28Ω		507374			
L18	Peaking	28Ω		507374			
L19	Peaking	4.5Ω		508069			
L20	Peaking	5Ω		508070			
L21	1st Sound IF	2Ω	2Ω	508061			
L22	RF Choke	15Ω		507373			Red Dot
L23	2nd Sound IF	2Ω	2Ω	508061			
L24	Fil. Choke	.8Ω		507586		CLA	1 Microhenry
L25	Sound Disc.	6Ω	.2Ω	507321			Tap .9Ω
L26	RF Choke	15Ω		507373			Blue Dot
L27	Horiz. Hold	80Ω		508967			
L28	Horiz. Width	26Ω	40Ω	508667			
L29	Damping Coil	6Ω		509615			
L30	Horiz. Lin.	4.5Ω		162190			

FUSES

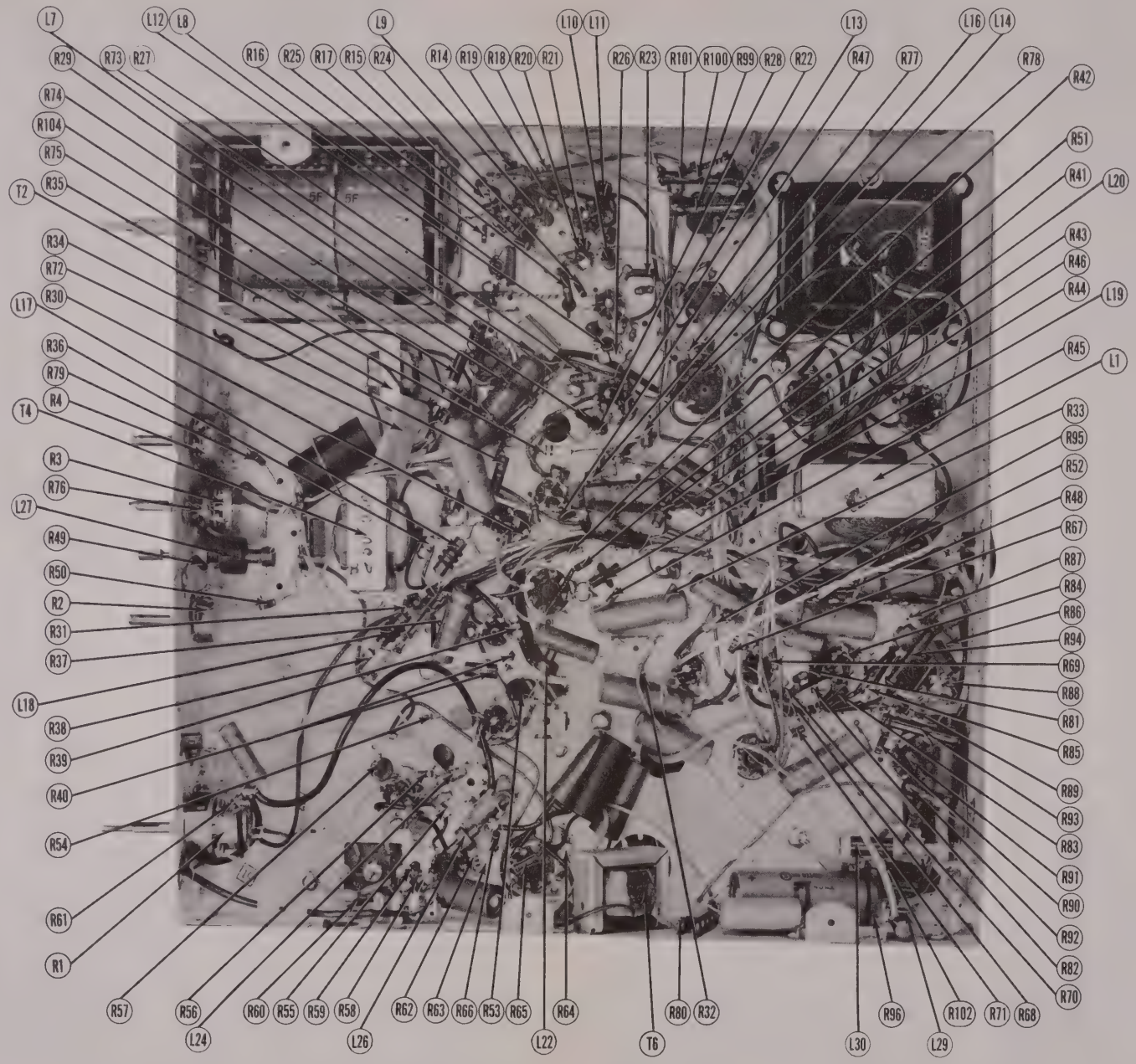
ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			Stewart-Warner PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M1	3AG	.250A	508713	508714	312.250	155020	
M2	3AG PigTail	1A			318001		

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					Stewart-Warner PART No.		
M3	Bayonet	6-8	.15	Brown	118921		Type #47

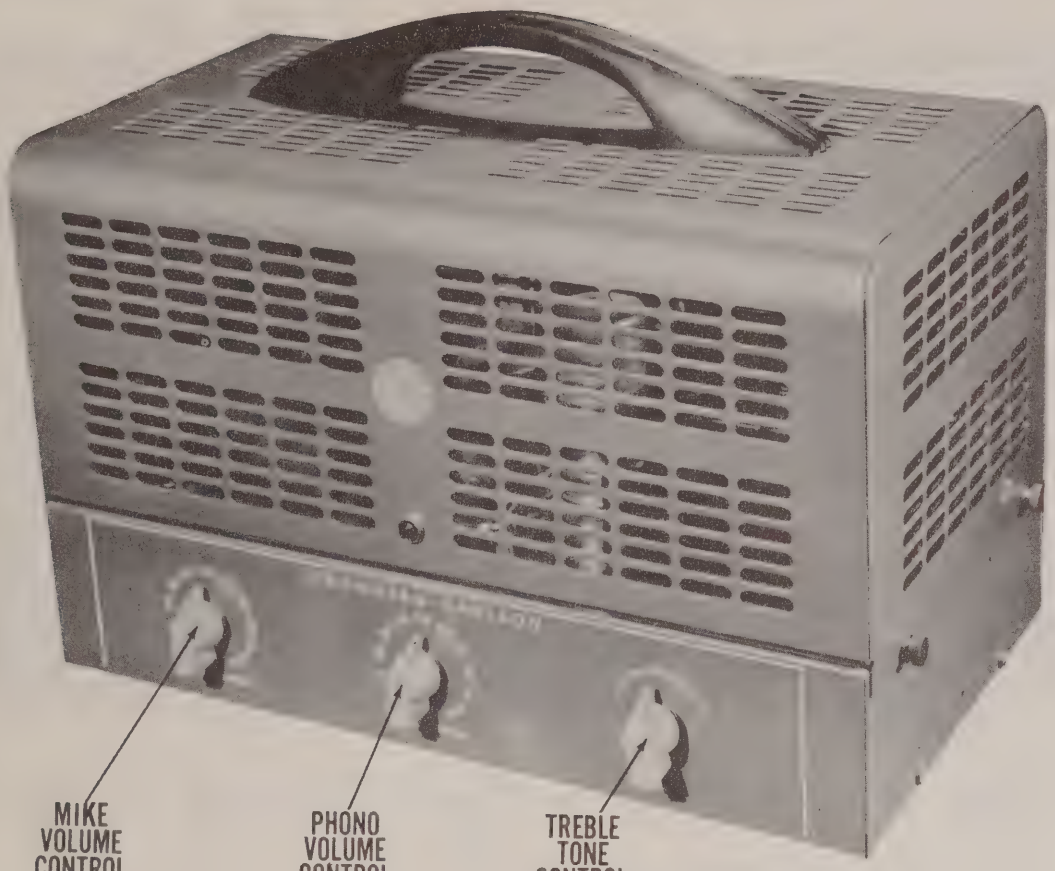
MISCELLANEOUS

ITEM No.	PART NAME	Stewart-Warner PART No.	NOTES
M4	RF Tuner	508890	
M5	Focus Magnet	509595	
M6	Ion Trap	508603	
B1	Trimmer	508071	Horizontal Drive (10-160MMF)
	Antenna Coil	507952	Channel 2
		507953	Channel 3
		507954	Channel 4
		507955	Channel 5
		507956	Channel 6
		507957	Channel 7
		507958	Channel 8
		507959	Channel 9
		507960	Channel 10
		507961	Channel 11
		507962	Channel 12
	RF, Mixer Grid And Oscillator Coils	507972	Channel 2
		507973	Channel 3
		507974	Channel 4
		507975	Channel 5
		507976	Channel 6
		507977	Channel 7
		507978	Channel 8
		507979	Channel 9
		507980	Channel 10
		507981	Channel 11
		507982	Channel 12
	Knob	502563	Antenna
	Knob	509018	Off / On Volume
	Knob	509017	Fine Tuning
	Knob	509016	Channel Selector
	Knob	509019	Contrast



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

STROMBERG-CARLSON
MODEL AU-42



STROMBERG-CARLSON
MODEL AU-42

TRADE NAME	Stromberg-Carlson, Model AU-42
MANUFACTURER	Stromberg-Carlson Co., 100 Carlson Rd., Rochester, New York
TYPE SET	AC Operated Audio Amplifier
TUBES (SIX)	Types 6SF5 Mic. Amp., 6J5 or 6C5 AF Amp., 6SC7 Driver-Phase Inverter, (2) 6L6G Power Output, 5Y3GT Rectifier
POWER SUPPLY	110-120 Volts AC RATING: .85 Amp. @ 117 Volts AC

HOWARD W. SAMS & CO., INC. • Indianapolis 1, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

STROMBERG-CARLSON
MODEL AU-42

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: STROM-CARL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Mic. Amplifier	41486	6SF5	6AB	
V2A	AF Amplifier	41132	6J5	6Q	
B	AF Amplifier	46713	6C5	6Q	Alternate
V3	Driver-Phase Inv.	35753	6SC7	8S	
V4	Power Output	35756	6L6G	7AC	
V5	Power Output	35756	6L6G	7AC	
V6	Rectifier	35836	5Y3GT/G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: STROM-CARL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	450	35590	AFH862J4A		UP43145C		TVL-4747	▲ Filter
B	30	350		PRS50/50		BR505			■ Filter
C	50	50							Output Cathode
C2A	10	350	34698	AF222J5A		UP11135C		TVL-4723	▲ Decoupling
B	10	300		PRS50/25		BR205A			■ Decoupling
C	10	250							▲ Decoupling
D	20	50							AF Amp. Cathode
C3	50	25	41157	PRS25/50		BR502A		TVA-1308	Mic. Pre-Amp. Cath.
C4	.05	400	40632	P488-05	DF-503	PTE4S5		4TM-S5	Audio Coupling
C5	750	500	29371	1468-00075	D6-751	1W5T8	GP2K-750	1FM-375	Tone Comp. †
C6	.1	400	25483	P488-1	DF-104	PTE4P1		4TM-P1	Audio Coupling
C7	.01	600	25485	P688-01	D6-103	PTE6S1	821-01	6TM-S1	Tone Comp.
C8	500	500	29371	1468-0005	D6-501	5W5T5	GP2K-500	1FM-35	Tone Comp.
C9	.05	400	40632	P488-05	DF-503	PTE4S5		4TM-S5	Audio Coupling
C10	.05	400	40632	P488-05	DF-503	PTE4S5		4TM-S5	Audio Coupling
C11	.003	400	46315	P688-003	D6-302	PTE6D3	GP2M-003	6TM-D3	Tone Comp. *
C12	.1	400	25483	P488-1	DF-104	PTE4P1		4TM-P1	Filament Isolation
C13	.1	600		P688-1	DF-104	PTE6P1		6TM-P1	Line Filter *

† Some models use 500MMF in this application.
* Not used in all models.

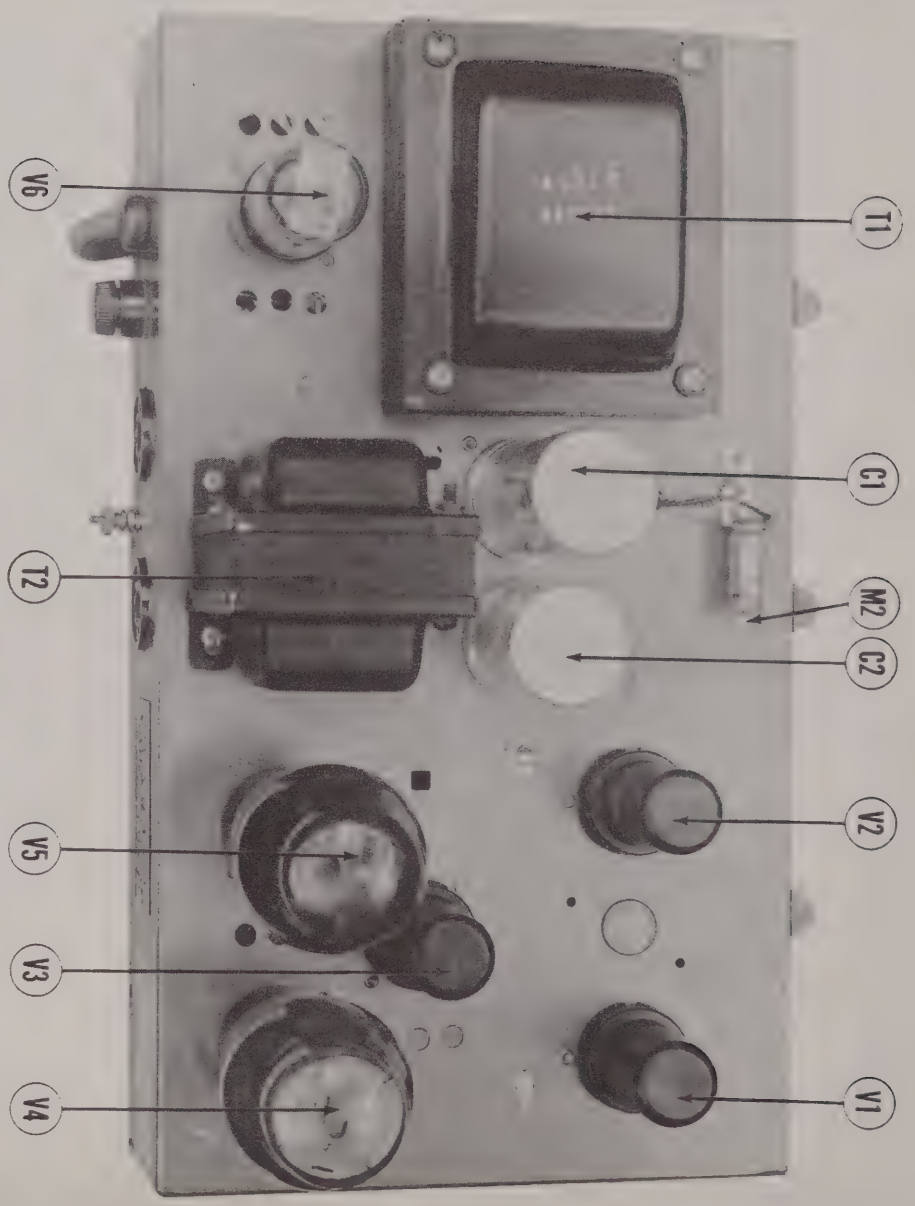
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: STROM-CAR PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	1Meg	½	46313	Q13-137	AM-63-Z	B-70	Mike Volume Control
B	Shaft		Not req.	Not req.	FS-3	Not req.	Attach to R1A per instructions
R2A	1Meg	½	46313	Q13-137	AM-63-Z	B-70	Phono Volume Control
B	Shaft		Not req.	Not req.	FS-3	Not req.	Attach to R2A per instructions
R3A	1Meg	½	39838	Q11-137	AM-61-S	B-69-S	Treble Control
B	Shaft		Not Req.	Not req.	FS-3	Not req.	Attach to R3A per instructions
C	Switch		Not req.	76-1	SW-A	Not req.	Attach to R3A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: STROM-CARL PART No.	IRC PART No.	IDENTIFICATION CODES
R4	1Meg	½	28191	BTS-1Meg	Mike Pre-Amp. Grid
R5	3900Ω	½	28165	BTS-3900	Mike Pre-Amp. Cathode
R6	68KΩ	½	28179	BTS-68K	Mike Pre-Amp. Plate
R7	1Meg	½	28191	BTS-1Meg	Isolation
R8	1Meg	½	28191	BTS-1Meg	Isolation
R9	2200Ω	½	28162	BTS-2200	AF Amp. Cathode
R10	56KΩ	½	28179	BTS-56K	Tone Compensation - See Note
R11	100KΩ	½	28006	BTS-100K	AF Amp. Plate
R12	1Meg	½	28191	BTS-1Meg	Driver Grid
R13	330KΩ	½	28185	BTS-330K	Driver Plate

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	Stromberg-Carlson PART No.	IRC PART No.	
R14	1500Ω	½	28160	BTS-1500	Driver-Phase Inv. Cathode
R15	10KΩ	½	28170	BTS-10K	Phase Inv. Grid
R16	330KΩ	½	28185	BTS-330K	Phase Inv. Plate
R17	330KΩ	½	28185	BTS-330K	Output Grid
R18	330KΩ	½	28185	BTS-330K	Output Grid
R19	200Ω	10	46357	1 3/4A-200	Output Cathode - Wire Wound
R20	3500Ω	10	46360	1 3/4A-3500	Filter - Wire Wound
R21	10KΩ	1	30417	BTA-10K	Decoupling
R22	10KΩ	1	30417	BTA-10K	Decoupling
R23	2200Ω	1	30616	BTA-2200	Decoupling
R24	47KΩ	2	149060	BTB-47K	Bleeder
R25	1Meg	½	28191	BTS-1Meg	Feedback Network

Note: Some models use 68KΩ Resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	STROM-CARL PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC ④ .85A	680VCT .120ADC	5VAC ④ 2A	6.3VAC ④ 2.8A	46316			PH-120B

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		STROM-CARL PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	4.5KΩ CT	500Ω Taps 4Ω, 8Ω, 15Ω	290Ω CT	16Ω Taps .42Ω, .6Ω, .8Ω	46317	A-3800 ②	A-3129 ②	PC0-80 ②	② Drill new mounting holes.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			STROMBERG-CARLSON PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M1	3AG	2Amp.	23150	27958	312002	342001	

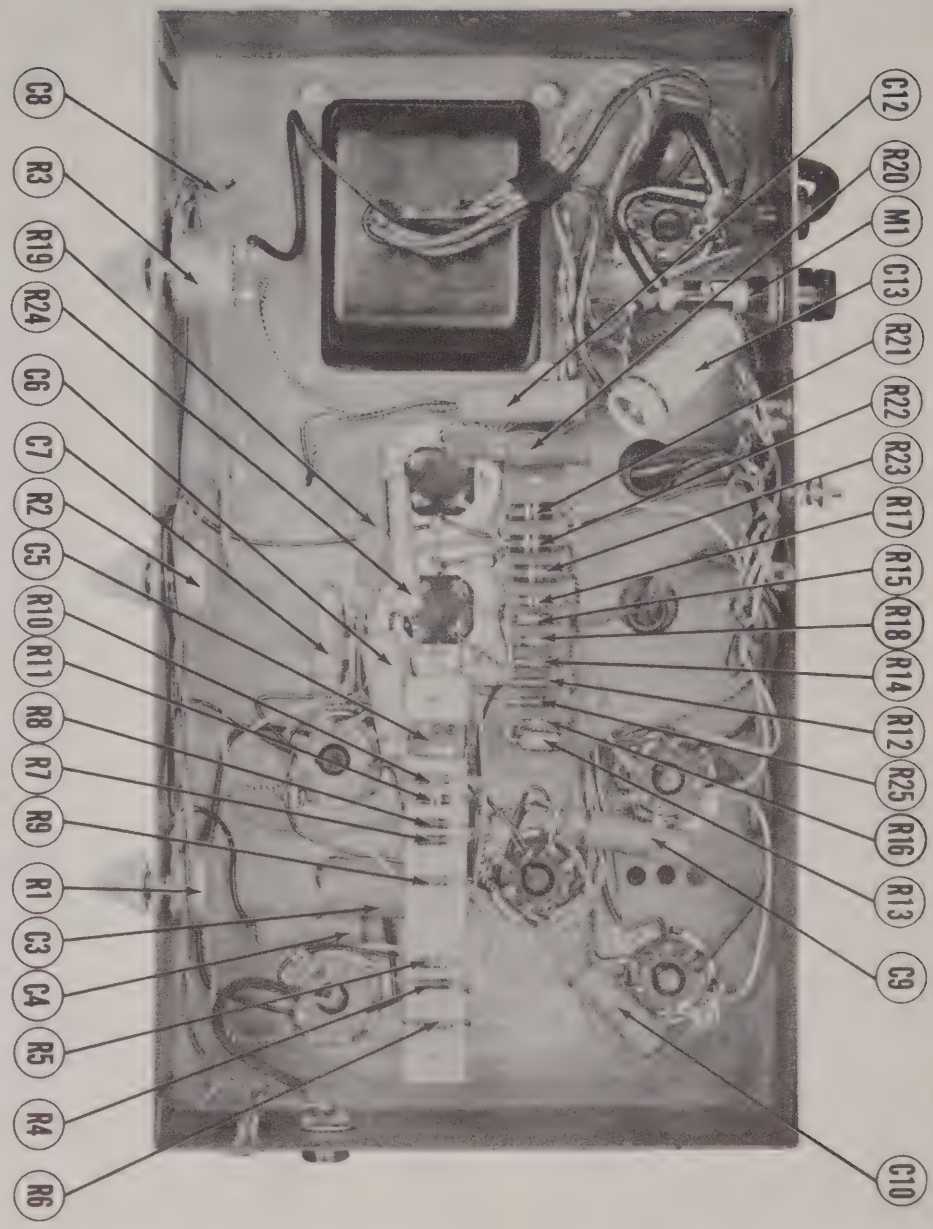
DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					STROM-CARL PART No.		
M2	Bayonet	6-8	.2	White	28025		Type #51

MISCELLANEOUS

ITEM No.	PART NAME	STROM-CARL PART No.	NOTES
	Knob	39840	

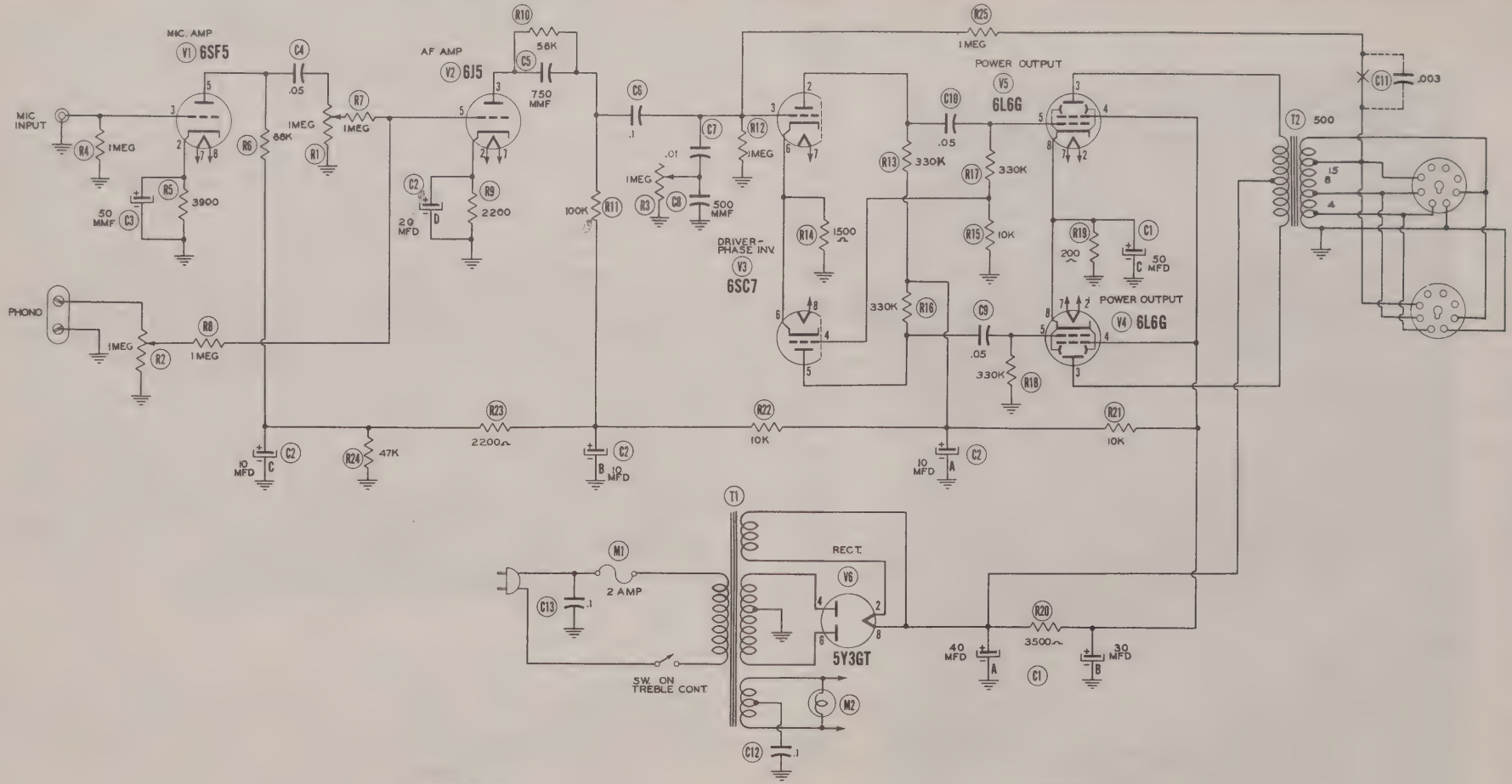
CHASSIS—BOTTOM VIEW



SET 137 FOLDER 12

STROMBERG-CARLSON MODEL AU-42

STROMBERG-CARLSON MODEL AU-42



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SF5	0V	1.6VDC	0V	0V	135VDC	0V	¶	¶
V 2	6J5	0V	¶	50VDC	0V	0V	0V	¶	1.8VDC
V 3	6SC7	0V	85VDC	0V	0V	85VDC	1.3VDC	¶	¶
V 4	6L6G	0V	¶	330VDC	300VDC	0V	0V	¶	22VDC
V 5	6L6G	0V	¶	330VDC	300VDC	0V	0V	¶	22VDC
V 6	5Y3GT	0V	340VDC	117VAC	320VAC	0V	320VAC	0V	340VDC

¶ 6.3VAC MEASURED ACROSS FILAMENTS

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SF5	0Ω	3.9KΩ	1Meg	Inf.	†95KΩ	Inf.	Inf.	Inf.
V 2	6J5	0Ω	Inf.	†180KΩ	Inf.	500KΩ	Inf.	Inf.	2.2KΩ
V 3	6SC7	0Ω	†345KΩ	500KΩ	10KΩ	†345KΩ	1.5KΩ	Inf.	Inf.
V 4	6L6G	0Ω	Inf.	†120Ω	†3.5KΩ	330KΩ	Inf.	Inf.	200Ω
V 5	6L6G	0Ω	Inf.	†125Ω	†3.5KΩ	340KΩ	Inf.	Inf.	200Ω
V 6	5Y3GT	Inf.	30KΩ	Inf.	90Ω	Inf.	90Ω	Inf.	30KΩ

† MEASURED FROM PIN 8 OF V6

THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

©Howard W. Sams & Co., Inc. 1951

137-12

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - All controls at minimum, proper output load converted.

IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . *unless* it has been purchased as part of a *complete* volume of PHOTOFACTS assembled in a DeLuxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

SYLVANIA MODEL
2221M (Ch. 1-387)

HOWARD W. SAMS & CO., INC. • Indianapolis, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

SYLVANIA MODEL 2221M (Ch. 1-387)

SYLVANIA MODEL 2221M (Ch. 1-387)

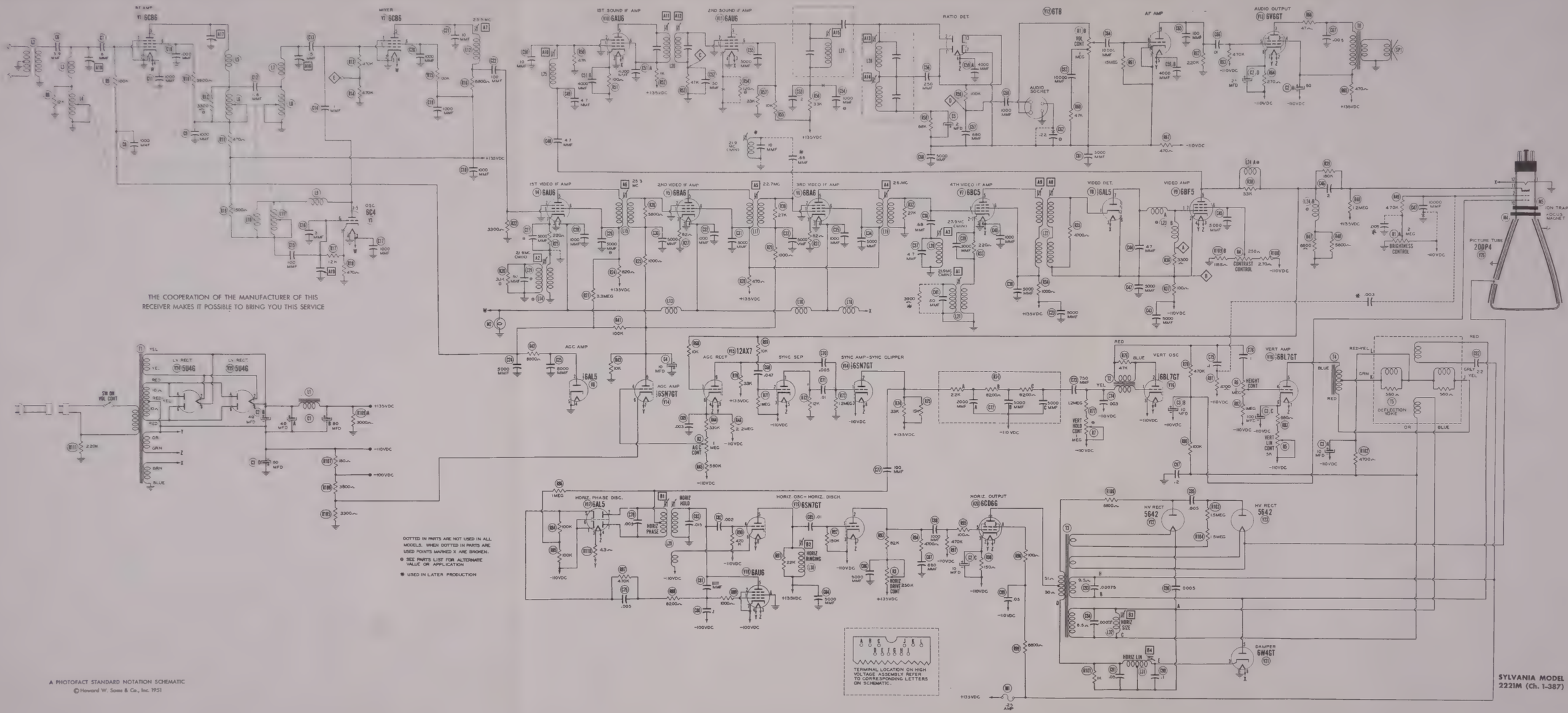
TRADE NAME	Sylvania, Model 2221M (Ch. 1-387)
MANUFACTURER	Sylvania Electric Prod., Inc., Colonial Radio And Tel. Div., 254 Rano St., Buffalo, N. Y.
TYPE SET	Television Receiver
TUBES	Twenty Six
POWER SUPPLY	110-120 Volts AC - 60 Cycle RATING 2.2 Amp. @ 117 Volts AC
TUNING RANGE-	Channels 2 thru 13

INDEX

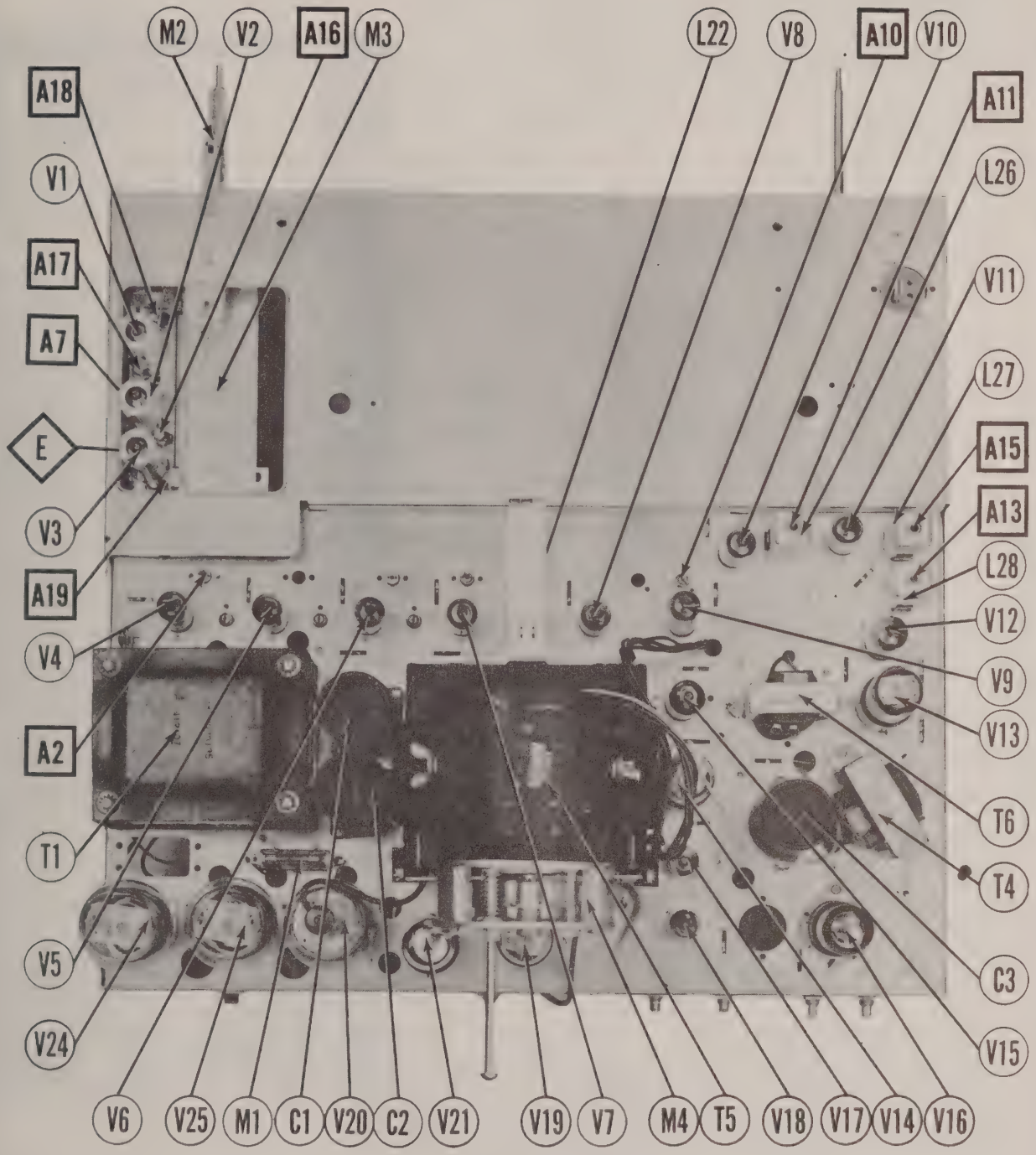
AGC Adjustment 11
Alignment Instructions 6, 7
Disassembly Instructions 11
Horizontal Sweep Circuit Adjustments 11
Parts List And Description 12, 13, 14
Photographs
Cabinet - Rear View 11
Capacitor And Alignment Identification 4, 9
Photographs (Continued)
Chassis - Top View 3
High Voltage Supply 10
RF Tuner 7
Resistor And Inductor Identification 15, 16
Schematic 2
Tube Placement Charts 5
Voltage And Resistance Measurements 8

HOWARD W. SAMS & CO., INC. • Indianapolis 1, Indiana

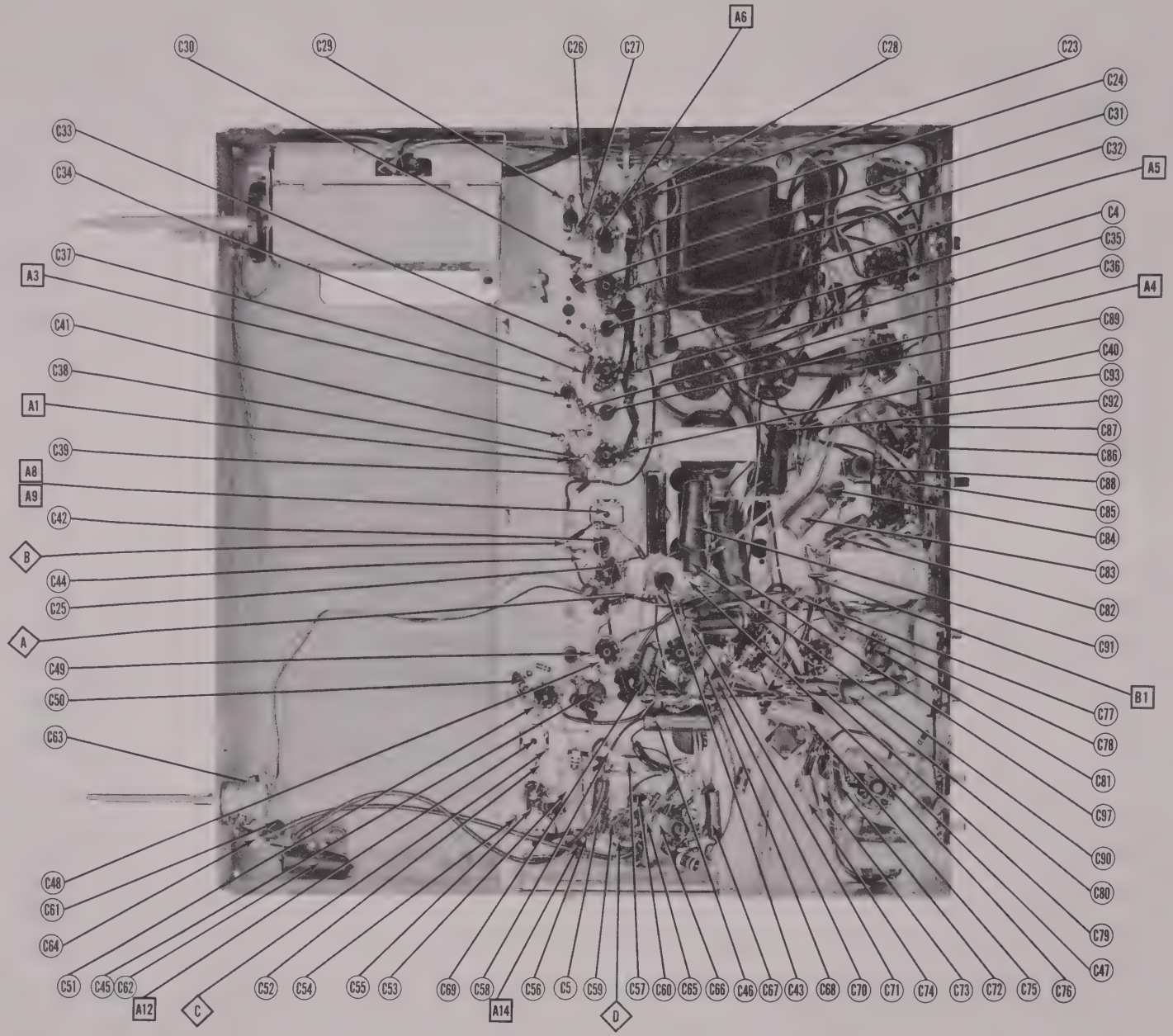
"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America



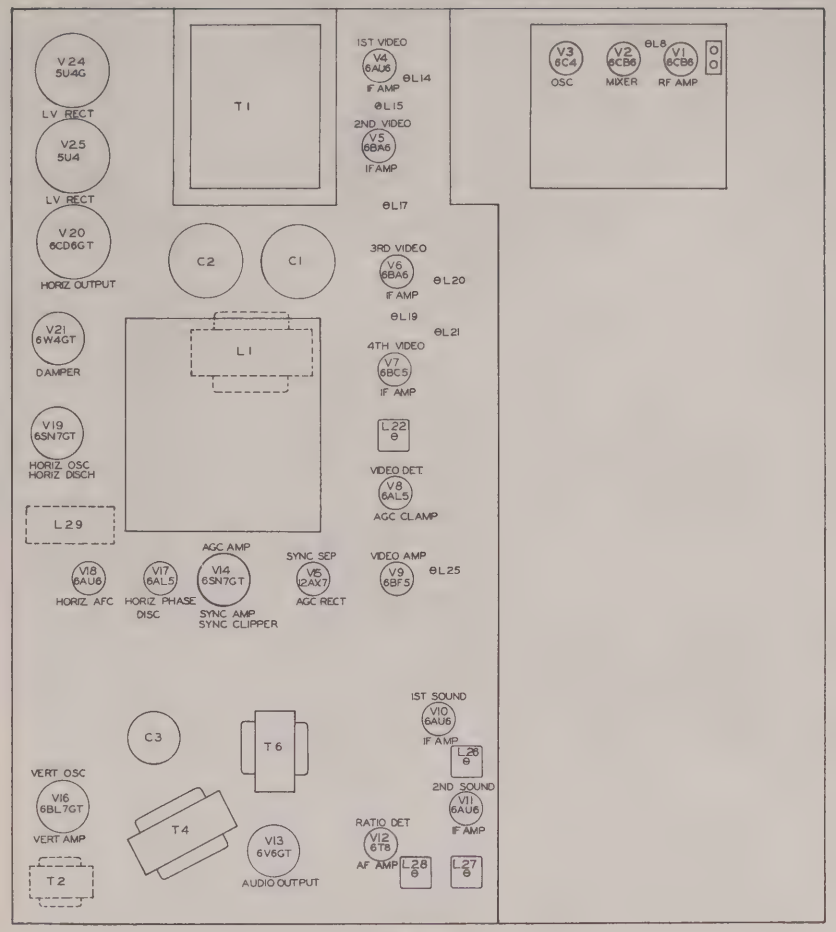
SYLVANIA MODEL 2221M (Ch. 1-387)



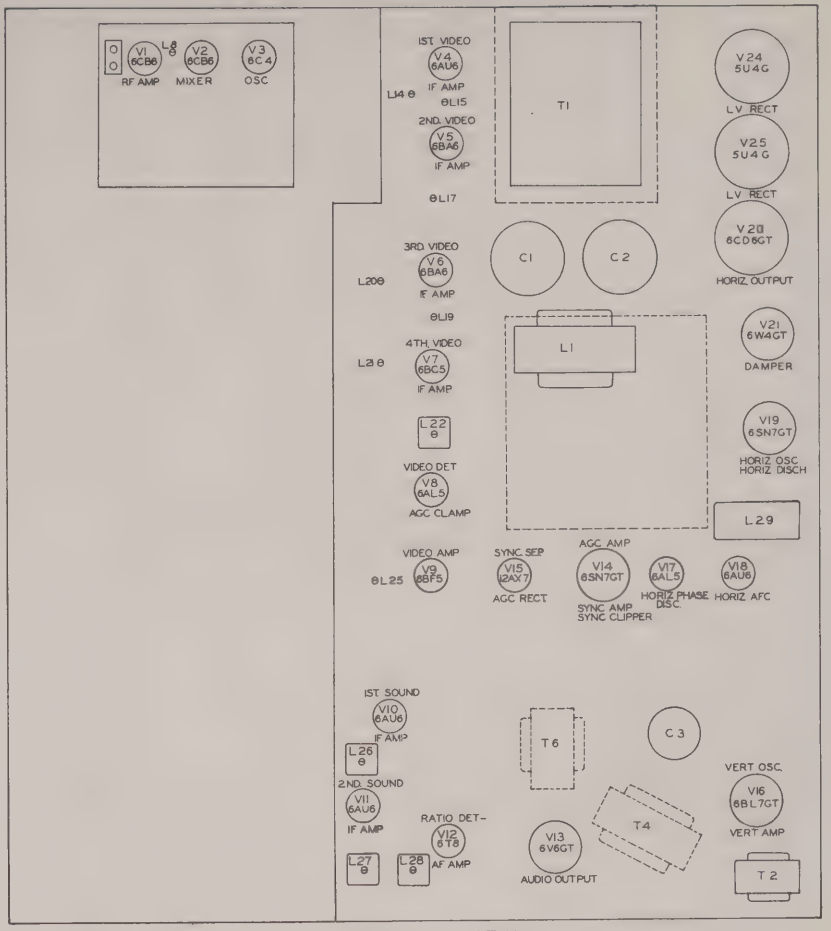
CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



TOP VIEW



BOTTOM VIEW

TUBE PLACEMENT CHART

SYLVANIA MODEL 2221M (Ch. 1-387)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

If the set is to be aligned with the picture tube removed, the end of the high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube to disable the high voltage.

VIDEO IF ALIGNMENT

Remove the local oscillator tube, (V3), from its socket to prevent the possibility of erroneous indications.
Connect the negative lead of a 3 volt battery to pin 5 of V14, connect the positive lead to chassis.
During video IF alignment the common lead of the VTVM is connected to approximately 135 volts with respect to chassis.
Avoid touching or grounding the VTVM case.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over mixer tube (V2). Low side to chassis.	Not used	21.9MC (unmod.)	Any	USE VTVM DC probe to Point (A). Common to Point (B).	A1, A2	Adjust for MINIMUM deflection.
2.	"	"	"	27.9MC	"	"	A3	"
3.	"	"	"	26.0MC	"	"	A4	Adjust for maximum deflection. Attenuate signal gen. to maintain 1 to 2 volt reading.
4.	"	"	"	22.7MC	"	"	A5	"
5.	"	"	"	25.3MC	"	"	A6	"
6.	"	"	"	23.5MC	"	"	A7	Adjust for maximum deflection. Attenuate signal gen. to maintain 1 to 2 volt reading. Recheck trap adjustments.
7.	.005MFD.	High side to pin 1 (Grid) of 6CB5 (V7). Low side to chassis.	25MC (10MC SWP)	21.9MC 23MC 27MC	"	Vert. amp. to Point (A). Low side to chassis.	A8, A9	Adjust for response curve similar to fig. 1.
8.	Direct	High side to an ungrounded tube shield floating over mixer tube (V2). Low side to chassis.	"	22.75MC 26.4MC	"	"		Check for response curve similar to fig. 2. If necessary retouch A4 thru A7 for proper response.

SOUND IF ALIGNMENT

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	.005MFD.	High side to pin 1 (Grid) of 6BF5 (V9). Low side to chassis.	4.5MC (450KC SWP)	4.5MC	Any	Vert. amp. thru 10KΩ to point (C). Low side to chassis.	A10, A11, A12	Adjust for maximum amplitude and symmetry as per fig. 3.
10.	"	"	"	"	"	Vert. amp. to Point (D). Low side to chassis.	A13, A14, A15	Adjust A13 and A14 so 4.5 MC occurs at center of "S" curve as per fig. 4. Adjust A15 for maximum amplitude and straightness of diagonal line.

TUNER ALIGNMENT

Replace the local oscillator tube, (V3), in its socket.
The use of two markers generators is required to align this tuner. Marker generator No. 1 is connected, through a 2 or 3 mmf. capacitor, across the sweep generator at the antenna terminals. If the sweep generator has a built-in marker, it will be used for marker No. 1. The frequency to which marker No. 1 is tuned will be indicated in the table by an asterisk (*). Marker generator No. 2 is connected to an ungrounded tube shield slipped over the mixer tube, (V2). The frequency to which marker No. 2 is tuned will be indicated in the table by a dagger (†).
During tuner alignment it is necessary to switch the scope between the detector circuit (fig. 5) and the 10KΩ resistor connected to point E . Therefore it is recommended that a single pole, double-throw switch, mounted as closely as possible to the oscilloscope input terminals, be used to switch the oscilloscope input. All connecting leads should be shielded and kept as short as possible.
Remove the second video IF amp. tube, (V5), to prevent IF feedback.
Leave the 3 volt bias connected as during video IF alignment.
Replace the tuning knobs.
Remove the tuner bottom cover.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

LOW BAND ALIGNMENT

Turn the tuner to channel 3, (3 on dial straight up).

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	63MC (10MC SWP)	*61.25MC *65.75MC	3	Vert. amp. thru 10KΩ to Point (E). Low side to chassis.	A16, A17, A18	Connect a 400Ω resistor from pin 1 of V1 to chassis. Adjust for response curve similar to fig. 6. Then remove the 400Ω resistor and adjust A18 for maximum amplitude between the peaks with peaks of equal amplitude.
12.	"	"	"	*61.25MC †26.4MC	"	Vert. Amp. thru detector probe to pin 1 of (V4). Low side to chassis.	A19	Adjust A19 so markers coincide on response curve.

HIGH BAND ALIGNMENT

Turn the tuner to channel 12, (12 on dial straight up).

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
13.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC SWP)	*205.25MC *209.75MC	12	Vert. amp. thru 10KΩ to point (E). Low side to chassis.	L5, L7, L3	Connect a 400Ω resistor from pin 1 of V1 to chassis. Expand or compress turns of L5 and L7 for response curve similar to fig. 6. Then remove the 400Ω resistor and adjust L3 turns for maximum amplitude between the peaks with the peaks of equal amplitude.
14.	"	"	"	*205.25MC †26.4MC	"	Vert. amp. thru detector probe to pin 1 of V4. Low side to chassis.	L9	Expand or compress coil turns so markers coincide on response curve. Replace the bottom cover and recheck the response and oscillator frequency on both channels 3 and 12. If necessary, repeat entire tuner alignment and compensate for tuner bottom cover.

ALIGNMENT INSTRUCTIONS (CONT.)

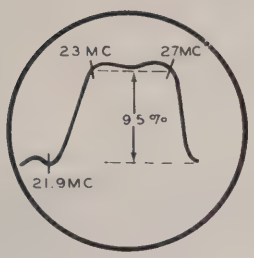


FIG. 1

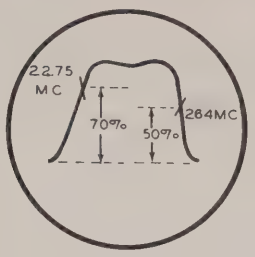


FIG. 2

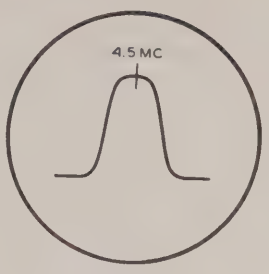


FIG. 3

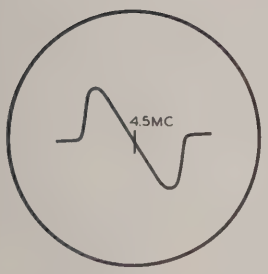


FIG. 4

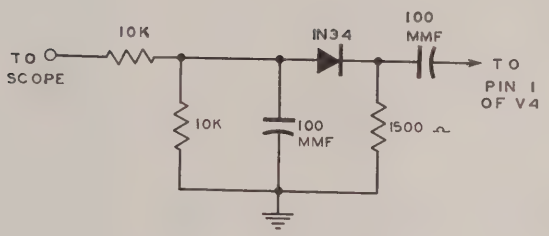
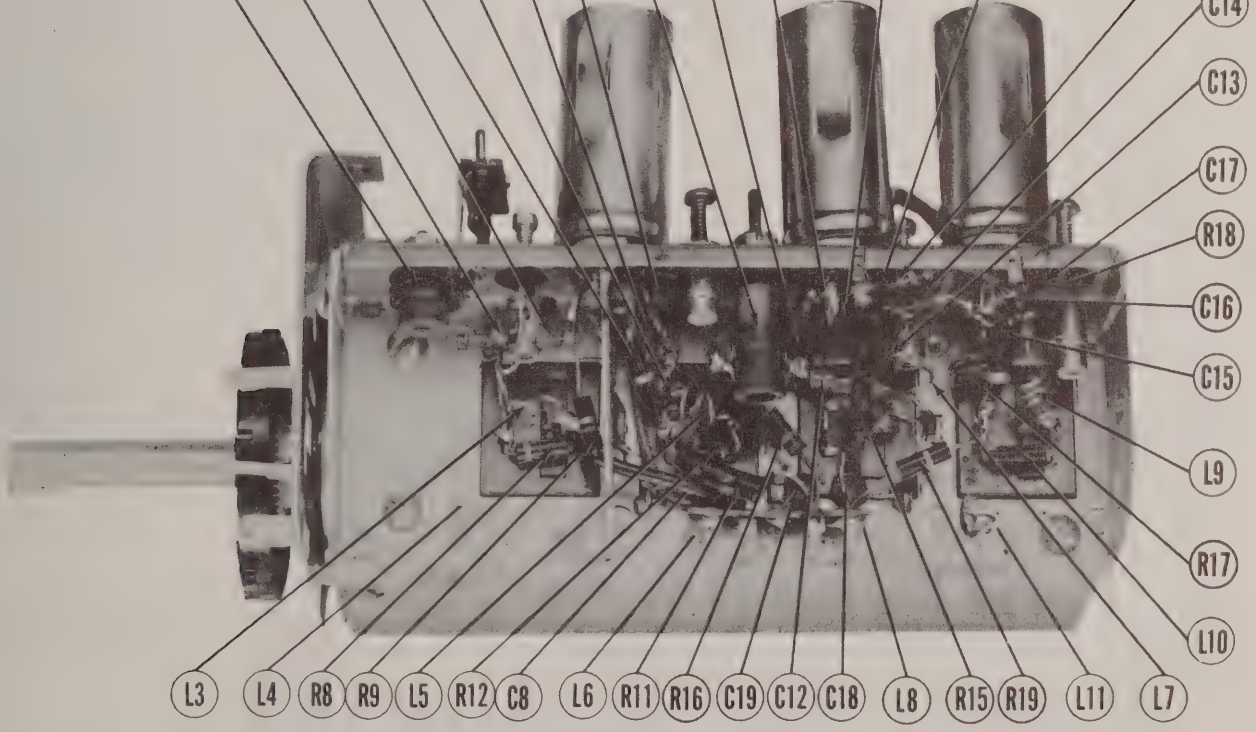


FIG. 5

FIG. 6



RF TUNER

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	-13VDC	0V	0V	6.3VAC	135VDC	122VDC	0V		
V 2	6CB6	-3.6VDC	0V	0V	6.3VAC	120VDC	115VDC	0V		
V 3	6C4	110VDC	0V	6.2VAC	0V	110VDC	§-2.7VDC	4VDC		
V 4	6AU6	0V	0V	0V	6.2VAC	130VDC	130VDC	1.6VDC		
V 5	6BA6	-.19VDC	0V	0V	6.2VAC	135VDC	135VDC	.2VDC		
V 6	6BA6	-.19VDC	0V	0V	6.2VAC	135VDC	135VDC	.2VDC		
V 7	6BC5	0V	1.8VDC	0V	6.2VAC	125VDC	125VDC	1.8VDC		
V 8	6AL5	▲1VDC	-10.6VDC	6.3VAC	0V	0V	▲0V	▲.8VDC		
V 9	6BF5	▲.8VDC	▲1.2VDC	▲6.1VAC	▲0V	▲75VDC	▲21VDC	▲.8VDC		
V 10	6AU6	-.1VDC	0V	0V	6.3VAC	120VDC	120VDC	1VDC		
V 11	6AU6	-.4VDC	0V	6.3VAC	0V	10VDC	75VDC	0V		
V 12	6T8	▲-.4VDC	▲-.7VDC	▲-.4VDC	▲6.1VAC	▲0V	▲.1VDC	▲.1VDC	▲-.4VDC	▲53VDC
V 13	6V6GT	Inf.	▲ 6.1VAC	▲200VDC	▲225VDC	▲0V	▲200VDC	▲0V	▲14VDC	
V 14	6SN7GT	▲.1VDC	▲110VDC	▲0V	▲65VDC ▲30VDC	▲90VDC	▲65VDC	▲0V	▲6.1VAC	
V 15	12AX7	▲100VDC	▲-.8VDC	▲0V	▲6.1VAC	▲6.1VAC	▲245VDC	▲75VDC	▲75VDC	▲0V
V 16	6BL7GT	▲-80VDC	▲200VDC	▲0V	▲0V	▲380VDC	▲30VDC	▲6.1VAC	▲0V	
V 17	6AL5	▲0V	▲-4.4VDC	▲1VAC	▲6.1VAC	▲.1VDC	▲0V	▲-4.4VDC		
V 18	6AU6	▲0V	▲3.7VDC	▲6.1VAC	▲ 0V	▲110VDC	0V	▲3.7VDC		
V 19	6SN7GT	▲-25VDC	▲65VDC	▲0V	▲-27VDC	▲245VDC	▲.1VDC	▲6.1VAC	▲0V	
V 20	6CD6G	▲135VDC	▲0V	▲18VDC	▲-.5VDC	▲-.7VDC	0V	▲6.1VAC	▲135VDC	TOP CAP *
V 21	6W4GT	-110VDC	0V	310VDC	130VDC	130VDC	-47VDC	0V	6.3VAC	
V 22	5642	* DO NOT MEASURE								
V 23	5642	* DO NOT MEASURE								
V 24	5U4G	0V	145VDC	0V	395VAC	0V	395VAC	0V	145VDC	
V 25	5U4G	0V	145VDC	-33VDC	395VAC	0V	395VAC	-110VDC	145VDC	
V 26	20DP4A	0V	-100VDC	PIN 10 260VDC	PIN 11 -6VDC	PIN 12 6.3VAC				

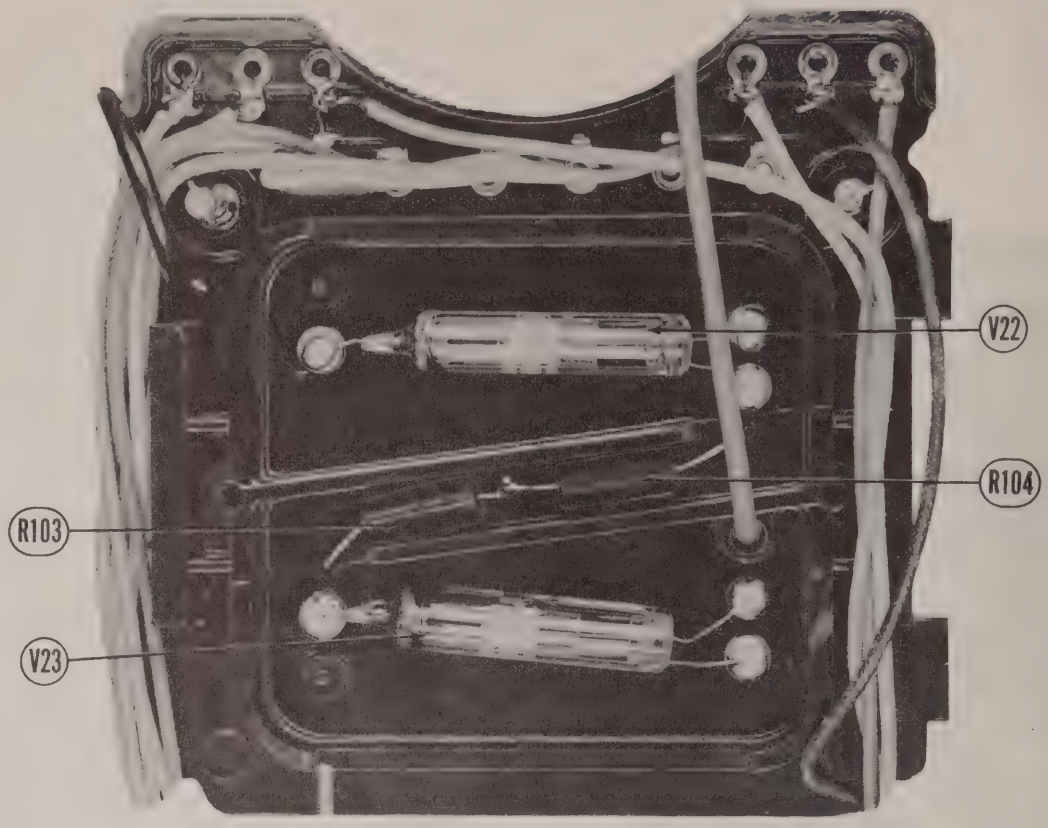
ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED
* DO NOT MEASURE
§ TAKEN WITH VACUUM TUBE VOLTMETER
▲ MEASURED FROM -110VDC LINE

RESISTANCE READINGS

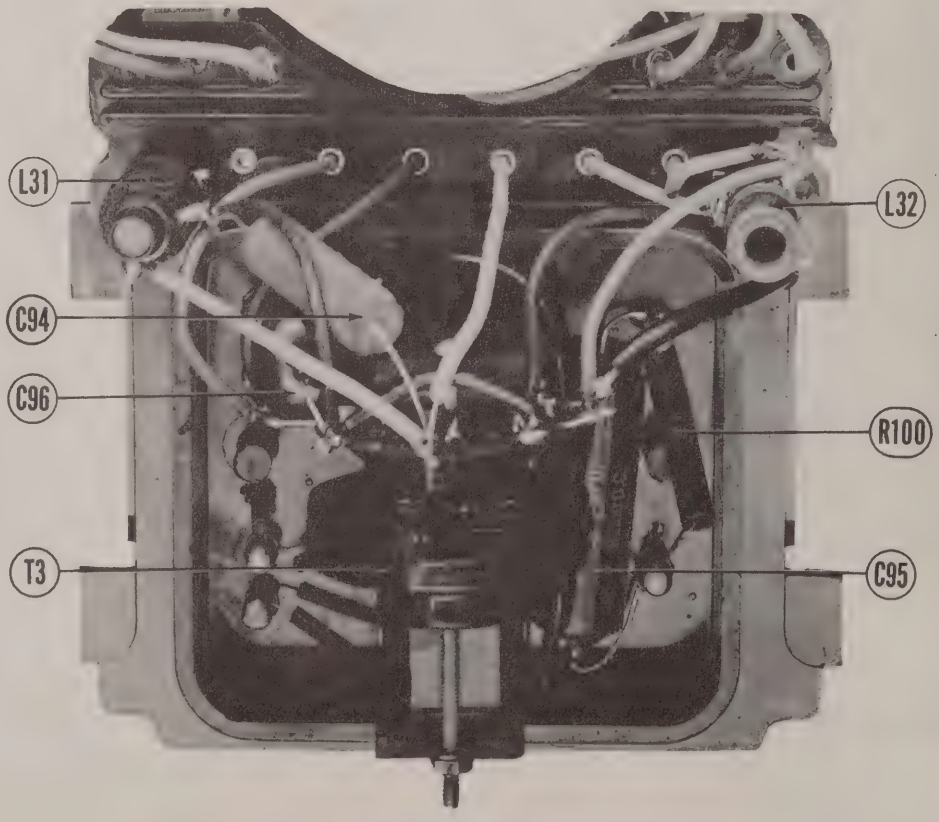
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	210KΩ	0Ω	0Ω	.1Ω	†470Ω	†4.3KΩ	0Ω		
V 2	6CB6	940KΩ	0Ω	0Ω	.1Ω	†6.8KΩ	†100KΩ	0Ω		
V 3	6C4	†1.8KΩ	Inf.	.1Ω	0Ω	†1.8KΩ	12KΩ	470Ω		
V 4	6AU6	3.3KΩ	0Ω	0Ω	.1Ω	†860Ω	†860Ω	220Ω		
V 5	6BA6	1KΩ	0Ω	0Ω	.1Ω	†500Ω	†500Ω	82Ω		
V 6	6BA6	1KΩ	0Ω	0Ω	.1Ω	†500Ω	†500Ω	82Ω		
V 7	6BC5	.7Ω	220Ω	0Ω	.1Ω	†1KΩ	†1KΩ	220Ω		
V 8	6AL5	▲100Ω	115KΩ	.1Ω	0Ω	0Ω	▲100Ω	▲3.4KΩ		
V 9	6BF5	▲3.4KΩ	▲100Ω	▲.1Ω	▲0Ω	3KΩ	▲300Ω ▲520Ω	▲3.4KΩ		
V 10	6AU6	47KΩ	0Ω	0Ω	.1Ω	†1KΩ	†1KΩ	100Ω		
V 11	6AU6	47KΩ	0Ω	.1Ω	0Ω	†33KΩ	†8.2KΩ	0Ω		
V 12	6T8	Inf.	▲68KΩ	Inf.	▲.1Ω	▲0Ω	▲470Ω	▲47Ω	▲15Meg	220KΩ
V 13	6V6GT	Inf.	▲.1Ω	†1.1KΩ	†500Ω	▲470KΩ	†1.1KΩ	▲0Ω	▲270Ω	
V 14	6SN7GT	1.2Meg	†10KΩ	▲0Ω	▲560KΩ ▲1Meg	10KΩ	.2.2KΩ	▲0Ω	▲.1Ω	
V 15	12AX7	12KΩ	▲1Meg	▲0Ω	▲.1Ω	▲.1Ω	†33KΩ	13KΩ	▲1.1Meg	▲0Ω
V 16	6BL7GT	▲1.3Meg ▲2.2Meg	#570KΩ	▲0Ω	▲900KΩ ▲2Meg	#5.6KΩ	▲680Ω ▲5.7KΩ	▲.1Ω	▲0Ω	
V 17	6AL5	▲0Ω	▲1.1Meg	▲2Ω	▲.1Ω	▲200KΩ	▲0Ω	▲1.1Meg		
V 18	6AU6	▲680KΩ	▲180Ω	▲.1Ω	▲0Ω	40Ω	0Ω	▲180Ω		
V 19	6SN7GT	▲150KΩ	†90KΩ †300KΩ	▲0Ω	▲470KΩ	†80Ω	▲10Ω	▲.1Ω	▲0Ω	
V 20	6CD6G	†6.8KΩ	▲0Ω	▲150Ω	▲470KΩ	▲470KΩ	Inf.	▲.1Ω	†6.9KΩ	TOP CAP #37Ω
V 21	6W4GT	▲550KΩ	Inf.	125KΩ	†47Ω	†57Ω	†340KΩ	0Ω	.1Ω	
V 22	5642	PINS 1 AND 2 ARE INFINITE (Plate #7KΩ)								
V 23	5642	ALL PINS INFINITE RESISTANCE								
V 24	5U4G	Inf.	3KΩ	Inf.	▲10Ω	Inf.	▲10Ω	Inf.	3KΩ	
V 25	5U4G	Inf.	3KΩ	▲1Meg	▲10Ω	Inf.	▲10Ω	▲0Ω	3KΩ	
V 26	20DP4A	0Ω	▲470KΩ	PIN 10 #100KΩ	PIN 11 180KΩ	PIN 12 .1Ω				

ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED
† MEASURED FROM PIN 8 OF V24 AND V25
# MEASURED FROM PIN 3 OF V21
▲ MEASURED FROM -110VDC LINE

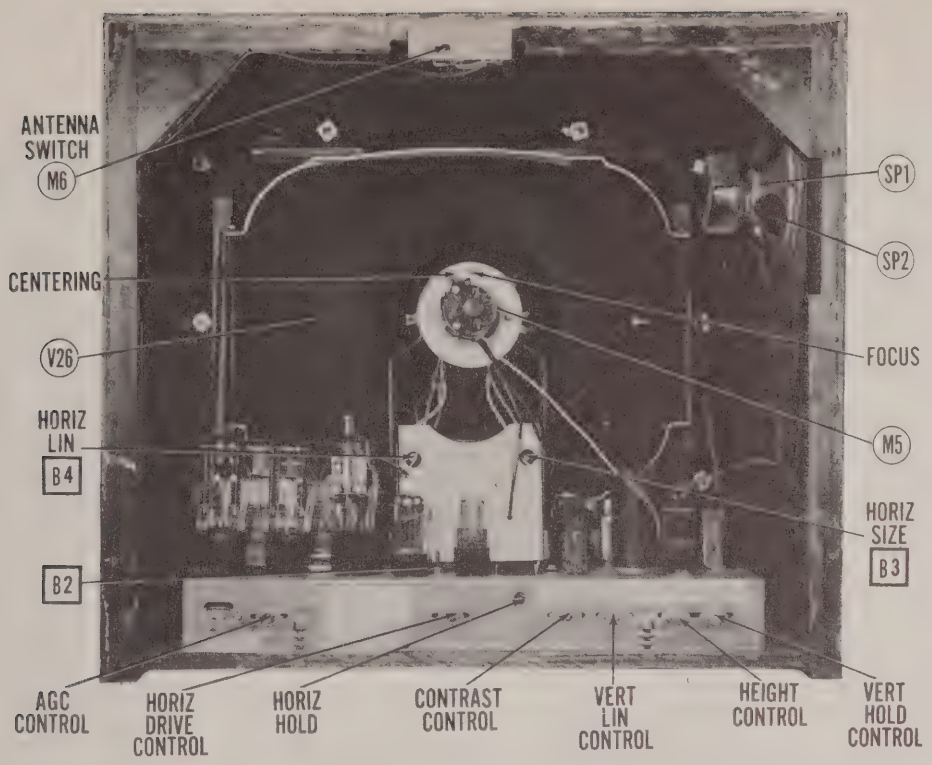
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



HIGH VOLTAGE SUPPLY



HIGH VOLTAGE SUPPLY



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

HORIZONTAL OSCILLATOR CHECK

Turn the set on and tune in a TV station, preferably a test pattern, and turn the horizontal hold adjustment to synchronize the picture.
Switch to another channel and back again. The picture should pull back into synchronization.
Turn the set off for about 5 minutes and then back on. The picture should pull back into synchronization.
Check the setting of the horizontal drive control as outlined under horizontal linearity adjustments.
Increase the brightness and decrease the contrast until the normally blanked edges of the raster are visable. There should be approximately 1/8 inch of blanking signal at the edges of the raster.

SLIGHT RETOUCH ADJUSTMENT

If the receiver failed the above check it may be possible to correct it with a slight retouch adjustment.
Tune in a station and adjust the tuning control for best picture quality.
Adjust the contrast and brightness controls for a normal picture.
Remove the horizontal phase discriminator, (V17), from its socket.
Adjust the horizontal hold adjustment until the picture moves back and forth across the raster with the blanking bar vertical.
Replace V17 and repeat the horizontal oscillator check. If the receiver still will not pass the check, proceed with complete horizontal oscillator alignment.

COMPLETE HORIZONTAL OSCILLATOR ALIGNMENT

Turn the core of the "ringing coil", (B2), fully out, (counter-clockwise) and short R94.
With the horizontal size slug, (B3), set for approximately the correct picture width and the horizontal linearity slug, (B4), adjusted for best linearity, turn the horizontal drive control fully counter-clockwise. Slowly turn the drive control clockwise until crowding is visable in the center of the picture. Now turn the drive control back, (counter-clockwise), just enough to remove the crowding. On some chassis it may not be possible to obtain crowding, in that case leave the control at maximum clockwise.
Remove V17 from its socket.
Carefully turn the horizontal hold adjustment until the picture moves back and forth with the blanking bar vertical.
Replace V17 in its socket.
Increase the brightness and decrease the contrast until the normally blanked edges of the raster are visable.
Adjust the horizontal phasing slug, (B1), until 1/8 inch of blanking appears at the edge of the raster.
Recheck the free running of the oscillator and if necessary readjust the horizontal hold adjustment.
Remove the short from R94 and adjust the ringing coil until 1/8 inch of blanking again appears at the edge of the raster.
Check the operation of the oscillator circuit as follows:
Slowly turn the horizontal hold adjustment in either direction until the picture falls out of synchronization. The number of sloping bars at this point should not exceed 6. Slowly turn the adjustment screw back towards the original setting and carefully note the least number of bars present just before the picture pulls into synchronization. The least number of bars present must not be less than 3 or more than 5. Repeat the check of horizontal oscillator. If the set fails either the oscillator check or the final check above, repeat the entire horizontal oscillator alignment.

HORIZONTAL LINEARITY ADJUSTMENT

Turn the horizontal drive control clockwise until crowding is visable in the center of the picture and then counter-clockwise just enough to remove the crowding. If no crowding is obtained leave the control at maximum clockwise.
Adjust the horizontal size slug, (B3), until the picture fills the mask horizontally.
Adjust the horizontal linearity slug, (B4), until the picture is symmetrical from left to right.

AGC ADJUSTMENT

Connect an antenna, turn the set on, and tune to an unused channel.
Set the contrast control to the mid-position of its range.
Turn the AGC threshold control to fully clockwise.
Connect a VTVM between Pin 5 of V14 and chassis. Adjust the threshold control until VTVM reads negative .1 volts. Note: On some receivers the nearest approach to this setting will be fully clockwise.
With the AGC control set as above, turn the contrast control to approximately 7/8 of maximum and tune in the strongest available station.
Again read the VTVM. If the reading is less than 2 volts negative, leave the threshold control as set.
If the reading is more than 2 volts negative, slowly turn the threshold control counter-clockwise while observing the picture. The picture will get darker and then finally start to fall out of sync as evidenced by a sudden shift or jittering in the picture. Do not turn beyond this point.
Back off (clockwise) slowly on the control to a point just slightly beyond the point where the picture holds sync. without flutter.
Turn the volume control to approximately normal. If intercarrier buzz is objectional, back off the AGC control until the buzz ceases to be objectional. If more than a slight decrease is required, recheck Sound IF Alignment.

DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs, and pilot lamp shield.
2. Remove eight wood screws securing rear cover to cabinet. Remove rear cover.
3. Disconnect built-in antenna.
4. Remove antenna terminal strip.
5. Disconnect speaker.
6. Remove two hex nuts from speaker. Remove speaker.
7. Remove six hex head bolts from chassis. Remove chassis.

NOTE: FOR PICTURE TUBE REMOVAL, IT IS NECESSARY TO REMOVE THE CHASSIS AS OUTLINED.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SYLVANIA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier	623-0023G	6CB6	6CK	
V2	Mixer	623-0023G	6CB6	6CK	
V3	Oscillator	623-0023G	6C4	6BG	
V4	1st Video IF Amp.	623-0005G	6AU6	7BK	
V5	2nd Video IF Amp.	623-0004G	6BA6	7BK	
V6	3rd Video IF Amp.	623-0004G	6BA6	7BK	
V7	4th Video IF Amp.	623-0011G	6BC5	7BD	
V8	Video Detector - AGC Clamp	623-0003G	6AL5	6BT	
V9	Video Amplifier	623-0017G	6BF5	7BZ	
V10	1st Sound IF Amp.	623-0005G	6AU6	7BK	
V11	2nd Sound IF Amp.	623-0005G	6AU6	7BK	
V12	Ratio Detector - AF Amplifier	623-0010G	6T8	9E	
V13	Audio Output	632-0004G	6V6GT	7AC	
V14	AGC Amplifier - Sync. Amplifier - Sync. Clipper	623-0005G	6SN7GT	8BD	
V15	Sync. Separator - AGC Rectifier	623-0008G	12AX7	9A	
V16	Vert. Oscillator - Vert. Amplifier	632-0011G	6BL7GT	8BD	
V17	Horiz. Phase Discriminator	623-0003G	6AL5	6BT	
V18	Horiz. AFC	623-0005G	6AU6	7BK	
V19	Horiz. Oscillator - Horiz. Discharge	632-0005G	6SN7GT	8BD	
V20	Horiz. Output	623-0013G	6CD6G	5BT	
V21	Damper	633-0004G	6W4GT	4CG	
V22	H.V. Rectifier	636-0001G	5642	5642	
V23	H.V. Rectifier	636-0001G	5642	5642	
V24	L.V. Rectifier	633-0003G	504G	5T	
V25	L.V. Rectifier	633-0003G	5U4G	5T	
V26	Picture Tube	642-0009G	20DP4A	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SYLVANIA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	350	161-2003	AFH284H		UPT44445		TVL-2675	▲ Filter
B	80	350							▲ Filter
C2A	60	350	161-4004	AFH284H		UPT4244		TVL-4707	▲ Output Decoupling
B	40	350		PRS50/10					■ Filter
C	10	50							▲ Horiz. Output Cathode
D	35	25							Audio Output Cathode
C3A	10	450	161-4003	AFH222Z4D		UPT411		TVL-4705	▲ Decoupling
B	10	450		PRS50/100					■ Decoupling
C	100	50							▲. Vert. Output Cathode Filter
D	60	200							AGC Filter
C4	10	25	161-1000	PRS50/25		BBR10-25T		TVA-1204	Stabilizing Cap
C5	2	50	161-1001	PRS150/4		BBR2-50T		TVA-1301	RF Coupling
C6	3.9								RF Coupling
C7	8								AGC Filter
C8	1000			BPD-001	DD-102		801-001	19C1	RF Amp. Decoupling
C9	1000			BPD-001	DD-102		801-001	19C1	RF Amp. Screen
C10	1000			BPD-001	DD-102		801-001	19C1	RF Amp. Fil.
C11	1000			BPD-001	DD-102		801-001	19C1	RF Coupling
C12	1.8								RF Coupling
C13	15				TCZ-1				Osc. Coupling
C14	1			SI100	D8-101		GP1K-101	19C11	Osc. Feedback
C15	100				D6-101				Osc. Grid Cap
C16	3			BPD-001	DD-102		801-001	19C1	Osc. Fil.
C17	1000			BPD-001	DD-102		801-001	19C1	RF Bypass
C18	1000			BPD-001	DD-102		801-001	19C1	RF Bypass
C19	1000			BPD-001	DD-102		801-001	19C1	Mixer Screen
C20	1000			BPD-001	DD-102		801-001	19C1	Fixed Trimmer
C21	10			SI10NPO	TCZ-10		NPOK-100	19C3	IF Coupling
C22	100			SI100	D8-101		GP1K-101	19C11	RF Bypass
C23	5000		166-5000D	BPD-005	DD-502	1D5D5	811-005	29C1	AGC Filter
C24	5000		166-5000D	BPD-005	DD-502	1D5D5	811-005	29C1	AGC Filter
C25	5000		166-5000D	BPD-005	DD-502	1D5D5	811-005	29C1	1st Video IF Coupling ¶
C26	5000		166-5000D	BPD-005	DD-502	1D5D5	811-005	29C1	1st Video IF Cathode ¶
C27	5000		166-5000D	BPD-005	DD-502	1W5D1	801-001	19C1	1st Video IF Fil.
C28	1000		166-1000D	BPD-001	DD-102		801-001	19C1	Fixed Trimmer ‡
C29	50		168-0009N	SI50NPO	TCZ-50			NPO-333-500	AGC Filter
C30	5000		166-5000D	BPD-005	DD-502	1D5D5	811-005	29C1	2nd Video IF Decoupling
C31	5000		166-5000D	BPD-005	DD-502	1D5D5	811-005	29C1	2nd Video IF Fil.
C32	1000		166-1000D	BPD-001	DD-102	1W5D1	801-001	19C1	AGC Filter
C33	5000		166-5000D	BPD-005	DD-502	1D5D5	811-005	29C1	3rd Video IF Decoupling
C34	5000		166-5000D	BPD-005	DD-502	1D5D5	811-005	29C1	3rd Video IF Fil.
C35	1000		166-1000D	BPD-001	DD-102	1W5D1	801-001	19C1	IF Coupling
C36	.68		168-0004P		TCZ-.68		NPOK-4R7		Fixed Trimmer
C37	4.7		168-0008N	SI4.7NPO	TCZ-4.7		NPOK-4R7		4th Video IF Decoupling
C38	5000		166-5000D	BPD-005	DD-502	1D5D5	811-.005	29C1	4th Video IF Cathode
C39	5000		166-5000D	BPD-005	DD-502	1D5D5	811-.005	29C1	4th Video IF Fil.
C40	1000		166-1000D	BPD-001	DD-102	1W5D1	801-001	19C1	Fixed Trimmer
C41	50		168-0009N	SI50NPO	TCZ-50		NPOK-333-500		RF Bypass
C42	5000		166-5000D	BPD-005	DD-502	1D5D5	811-.005	29C1	RF Bypass
C43	5000		166-5000D	BPD-005	DD-502	1D5D5	811-.005	29C1	Video Diode Filter
C44	4.7		168-0008N	SI4.7NPO	TCZ-4.7	5W5V5	NPOK-4R7	MS-55	Video Amp. Screen
C45	5000		166-5000D	BPD-005	DD-502	1D5D5	811-.005	29C1	Video Coupling
C46	.2	200	162-0202	P488-22		GT4P2		2TM-P22	Picture Tube Grid
C47	10000		168-0002N	SI10000	D6-103	PTE6S1	GP2-333-103	36C1	2nd Sound IF Grid
C48	4.7		168-0008N	SI4.7NPO	TCZ-4.7	5R5V5	NPOK-4R7	MS-55	Sound IF Coupling
C49	4.7		168-0008N	SI4.7NPO	TCZ-4.7	5R5V5	NPOK-4R7	MS-55	Voltage Divider
C50	10		168-0010P	SI10NPO	TCZ-10		NPOK-100	19C3	Fixed Trimmer
C51A	4000		168-0003D	BPD-2X004	DD-2-502	1D5D4	822-.004	36C2	1st Sound IF Decoupling
B	4000					1D5D4			1st Sound IF Cathode
C52	50		166-0050N	SI50	D6-500	5W5Q5	GP1K-500	19C28	2nd Sound IF Grid
C53	.2	400	162-0402	P488-22		GT4P2		4TM-P22	2nd Sound IF Plate Dec.
C54	1000		166-1000D	BPD-001	DD-102	1W5D1	801-.001	19C1	2nd Sound IF Plate Dec. †
C55	5000		166-5000D	BPD-005	DD-502	1D5D5	811-.005	29C1	2nd Sound IF Screen
C56	250		166-0250P	SI250	D6-251	5W5T25	GP2K-251	1FM-325	Diode Load Cap

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SYLVANIA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C57	680		163-0680	SI680	D6-681	1W5T7	GP2K-681	19C17	De-emphasis
C58	10000		168-0002N	SI10000	D6-103	PTE6S1	GP2-333-103	36C1	Audio Coupling
C59A	4000		168-0003D	BPD-2X004	DD-2-502	1D5D4	822-004	36C2	Ratio Det. - AF Amp. Fil.
B	4000					1D5D4			Ratio Det. - AF Amp. Fil.
C60	5000		166-5000D	BPD-005	DD-502	1D5D5	811-.005	29C1	RF Bypass
C61	5000		166-5000D	BPD-005	DD-502	1D5D5	811-.005	29C1	RF Bypass
C62	.22	200		P488-22		GT2P25		2TM-P22	Isolation †
C63	10000		190-0006 †	SI10000	DD-103	PTE6S1	GP2-333-103	36C1	Tone Comp.
C64	10000		168-0002N	SI10000	D6-103	PTE6S1	GP2-333-103	36C1	Audio Coupling
C65	100	500	163-0100	1468-0001	D6-101	5W5T1	GP1K-101	1FM-31	AF Amp. Plate
C66	.01	600	168-0002N	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Audio Coupling
C67	.005	600	162-0625	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Output Plate
C68	.047	200	160-02147	P288-047	DF-503	PTE4S5		4TM-S47	Sync. Coupling
C69	.003	600	162-0623	P688-003	D6-302	PTE6D3	GP2-333-302	6TM-D3	AGC Rect. Cathode
C70	.005	400	162-0425	P488-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Sync. Coupling
C71	.01	600	168-0002N	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Sync. Coupling
C72A	2000		190-0007 *	P688-002		PTE6D2	80I-.002	6TM-D2	Integrator Net
B	5000			P688-005	PC-100 *	PTE6D5	811-.005	6TM-D5	Integrator Net
C	5000			P688-005		PTE6D5	811-.005	6TM-D5	Integrator Net
C73	750	500	163-0750	1468-0007	D6-751	1W5T5	GP2L-751	MS-38	Vert. Sync. Coupling
C74	.003	600	162-0623	P688-003	D6-302	PTE6D3	GP2-333-302	6TM-D3	Vert. Osc. Grid
C75	.1	400	162-0401	P488-1		PTE4P1		4TM-P1	Vert. Discharge
C76	.1	400	162-0401	P488-1	DF-104	PTE4P1		4TM-P1	Vert. Sweep Coupling
C77	100	500	163-0100	1468-0001	D6-101	5W5T1	GP1K-101	1FM-31	Horizontal Sync. Coupling
C78	.005	400	162-0425	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Fixed Trimmer
C79	.005	600	162-0625	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	AFC Filter
C80	.1	200	162-0201	P288-1	DF-104	PTE4P1		2TM-P1	AFC Filter
C81	100	500	163-0100	1468-0001	D6-101	5W5T1	GP1K-101	1FM-31	Horizontal Phase Shifter
C82	.002	400	162-04228	P688-002	D6-202	PTE6D2	GP2-333-202	6TM-D2	Horizontal Osc. Grid
C83	.015	400	169-0010	P488-015		PTE6S15		6TM-S15	Fixed Trimmer
C84	5000		166-5000D	BPD-005	DD-502	1D5D5	811-.005	29C1	RF Bypass
C85	.01	600	162-0611	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Horizontal Sweep Coupling
C86	5000		166-5000D	BPD-005	DD-502	1D5D5	811-.005	29C1	Horizontal Disch. Decoupling
C87	680	500	163-0680	SI680	D6-681	1W5D1	GP2K-681	19C17	Horizontal Disch.
C88	1000		166-1000P	SI1000	D6-102	1W5D1	GP2L-102	19C1	Horizontal Sweep Coupling
C89	.05	400	162-0415	P488-05	DF-503	PTE4S5		4TM-S5	Horizontal Output Screen
C90	.1	600	162-0601	P688-1		PTE6P1		6TM-P1	Damper Filter
C91	.03	600	162-0613	P688-03		PTE6S3		6TM-S3	Damper Filter
C92	.22	600	160-02022	684-25		GT6P25		6TM-P25	Damper Filter Sweep Coupling
C93	.00075	1600	162-16375	1464-HV-000 75					Fixed Trimmer
C94	.00075	1600	162-16375	1464-HV-000 75					Fixed Trimmer
C95	.0005	10000	160-14350	P10088-0005		PTE100T5		TVM-351	Voltage Doubler Cap
C96	.0005	10000	160-14350	P10088-0005		PTE100T5		TVM-351	HV Filter
C97	.2	600	162-0602	684-2		GT6P2		6TM-P25	Decoupling

† Not used in all models.
‡ C63 and R60 are combined into one unit.
* C72A, B, C, and R76A, R76B, R76C are combined in one unit.
§ Not used in late productions.
¶ In late productions, C26 and C27 are replaced by a dual .004MFD unit - Part # 168-0003D.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SYLVANIA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	2Meg			Concentrikit			
B	1Meg		157-0014	B11-139 ‡			Brightness Control - Front
C	Shaft End			B13-137X ‡			Volume Control - Tapped @ 250KΩ -Rear
D	Switch			E-203 ‡			Attach Per Instructions in "Concentrikit"
R2A	1Meg	½	153-0009	76-1 ‡			Attach Per Instructions in "Concentrikit"
B	Shaft		Not req.	Q11-137	AG-61-8	AN-69	AGC Control
R3A	250KΩ	½	153-0007	Not req.	FKS-1/4	AK-1	Attach to R2A Per Instructions
B	Shaft		Not req.	Q11-139	AG-55-8	AN-50	Horizontal Drive Control
R4	250Ω	2	153-0007	Not req.	FKS-1/4	AK-1	Attach to R3A Per Instructions
R5A	5000Ω	½	153-0010	WK-250	43-300	VK-123	Contrast Control - Wire Wound
B	Shaft		Not req.	Q11-114	AM-19-8	AN-10	Vertical Linearity Control
R6A	1Meg	½	153-0001	Not req.	FKS-1/4	AK-1	Attach to R5A Per Instructions
B	Shaft		Not req.	Q11-137	AG-61-8	AN-69	Height Control
R7A	1Meg	½	153-0001	Not req.	FKS-1/4	AK-1	Attach to R6A Per Instructions
B	Shaft		Not req.	Q11-137	AG-61-8	AN-69	Vertical Hold Control - See Note 1
			Not req.	Not req.	FKS-1/4	AK-1	Attach to R7A Per Instructions

‡ Additional parts to be used with "Concentrikit"
Note 1. Some models use 1.5 meg control in this application. (Part # 153-0014)

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SYLVANIA PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ± 10% UNLESS OTHERWISE SPECIFIED
R8	12KΩ	½			Antenna Coil Shunt
R9	100KΩ	½			RF Amp. Grid
R10	3900Ω 20%	½		BTS-3900	RF Amp. Screen
R11	470Ω	½		BTS-470	RF Amp. Decoupling
R12	3300Ω	½		BTS-3300	RF Coil Shunt - See Note 3
R13	470KΩ 20%	½			Mixer Grid
R14	470KΩ 20%	½			Mixer Grid
R15	100KΩ	½			Mixer Screen
R16	6800Ω 20%	½			Mixer Plate
R17	12KΩ	½			Oscillator Grid
R18	470Ω 20%	½		BTS-470	Oscillator Cathode
R19	1500Ω	½		BTS-1500	Oscillator Plate - See Note 4
R20	33KΩ	½	181-0333		Trap Coil Shunt - See Note 5
R21	3.3Meg	½	181-0335	BTS-3.3Meg	Voltage Divider
R22	3300Ω	½	181-0332	BTS-3300	1st Video IF Amp. Grid
R23	220Ω	½	181-0221	BTS-220	1st Video IF Amp. Cathode
R24	820Ω	½	181-0821	BTS-820	1st Video IF Amp. Decoupling
R25	1000Ω 20%	½	181-0102	BTS-1000	AGC Network
R26	5600Ω	½	181-0562	BTS-5600	2nd Video IF Transformer Shunt
R27	82Ω	½	181-0820	BTS-82	2nd Video IF Cathode
R28	470Ω 20%	1	182-0471	BTA-470	Decoupling
R29	1000Ω 20%	½	181-0102	BTS-1000	AGC Network
R30	27KΩ	½	181-0273		3rd Video IF Transformer Shunt
R31	82Ω	½	181-0820	BTS-82	3rd Video IF Amp. Cathode
R32	27KΩ	½	181-0273		4th Video IF Transformer Shunt
R33	220Ω	½	181-0221	BTS-220	4th Video IF Amp. Cathode
R34	1000Ω 20%	½	181-0102	BTS-1000	4th Video IF Amp. Decoupling
R35	47000Ω	½	181-0472	BTS-4700	5th Video IF Transformer Shunt

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SYLVANIA PART No.	IRC PART No.	IDENTIFICATION CODES
R36	33000Ω 5%	½	181-0335	BTS-3300-5%	Video Detector Diode Load
R37	100Ω 20%	½	181-0101	BTS-100	Bias Network
R38	33KΩ 20%	½	181-0333	BTS-33K	Video Peaking Coil Shunt
R39	180KΩ 5%	½	181-0345	BTS-180K-5%	Video Amp. Plate
R40	1.2Meg 5%	½	181-0255	BTS-1.2Meg-5%	Video Amp. Plate
R41	100KΩ 5%	½	181-0104	BTS-100K-5%	AGC Network
R42	68000Ω 20%	½	181-0682	BTS-6800	AGC Network
R43	10KΩ	½	181-0103	BTS-10K	AGC Amp. Plate
R44	330KΩ 5%	½	181-0334	BTS-330K-5%	Voltage Divider
R45	560KΩ 5%	½	181-0564	BTS-560K-5%	Voltage Divider
R46	2.2Meg	½	181-0225	BTS-2.2Meg	Voltage Divider
R47	68000Ω	2	183-0682	BTB-6800	Voltage Divider
R48	56000Ω	2	183-0562	BTB-5600	Picture Tube Grid
R49	470KΩ 20%	½	181-0474	BTS-470K	1st Sound IF Amp. Grid
R50	47KΩ	½	181-0473	BTS-47K	1st Sound IF Amp. Cathode
R51	100Ω	½	181-0101	BTS-100	1st Sound IF Amp. Decoupling
R52	10000Ω	½	181-0103	BTS-1000	2nd Sound IF Amp. Grid
R53	47KΩ	½	181-0473	BTS-47K	2nd Sound IF Amp. Cathode - See Note 2
R54	120Ω	½	181-0121	BTS-120	2nd Sound IF Amp. Decoupling
R55	10KΩ	1	182-0103	BTA-10K	2nd Sound IF Amp. Plate Decoupling
R56	33KΩ	½	181-0333	BTS-33K	Voltage Divider
R57	33KΩ	½	181-0333	BTS-33K	Voltage Divider
R58	68KΩ	½	181-0683	BTS-68K	Ratio Detector Diode Load
R59	100KΩ	½	181-0104	BTS-100K	De-emphasis
R60	47KΩ	½	190-0006 †	BTS-47K	Tone Compensation
R61	15Meg	½	181-0156	BTS-15Meg	AF Amp. Grid
R62	220KΩ	½	181-0224	BTS-220K	AF Amp. Plate
R63	470KΩ	½	181-0474	BTS-470K	Output Grid
R64	270Ω	1	182-0271	BTA-270	Output Cathode
R65	470Ω	2	183-0472	BTB-470	Output Decoupling
R66	47Ω	½	181-0470		Parasitic Suppressor
R67	470Ω	½	181-0471	BTS-470	Bias Network
R68	10KΩ 20%	½	181-0103	BTS-10K	Isolation
R69	10KΩ 20%	½	181-0103	BTS-10K	Isolation
R70	33KΩ	½	181-0333	BTS-33K	Sync. Sep. Plate
R71	1Meg 20%	½	181-0105	BTS-1Meg	Sync. Sep. Grid
R72	12KΩ	½	181-0123	BTS-12K	Sync. Sep. Plate
R73	1.2Meg 20%	½	181-0125	BTS-1.2Meg	Sync. Amp. Grid
R74	33KΩ	1	182-0333	BTA-33K	Sync. Amp. Plate
R75	15KΩ	2	183-0153	BTB-15K	Sync. Amp. Plate
R76A	22KΩ	½	190-0007 *	BTS-22K	Integrator
B	8200Ω			BTS-8200	Integrator
C	8200Ω			BTS-8200	Integrator
R77	1.2Meg	½	181-0125	BTS-1.2Meg	Vertical Osc. Grid
R78	470KΩ	½	181-0474	BTS-470K	Vertical Osc. Plate
R79	47KΩ 20%	½	181-0473	BTS-47K	Vertical Osc. Transformer Shunt
R80	100KΩ 20%	½	181-0104	BTS-100K	Decoupling
R81	4700Ω 5%	½	181-04725	BTS-4700-5%	Vertical Peaking
R82	1Meg 20%	½	181-0105	BTS-1Meg	Vertical Output Grid
R83	680Ω 20%	½	181-0681	BTS-680	Vertical Output Cathode
R84	100KΩ 5%	½	181-0145	BTS-100K-5%	Horizontal Phase Disc. Diode Load
R85	100KΩ 5%	½	181-0145	BTS-100K-5%	Horizontal Phase Disc. Diode Load
R86	1Meg 20%	½	181-0105	BTS-1Meg	Horizontal Phase Disc. Diode Load
R87	470KΩ 20%	½	181-0474	BTS-470K	Horizontal AFC Filter
R88	8200Ω	½	181-0822	BTS-8200	Horizontal AFC Filter
R89	10000Ω 20%	½	181-0102	BTS-1000	Horizontal AFC Grid
R90	470KΩ 20%	½	181-0474	BTS-470K	Horizontal Osc. Grid
R91	22KΩ 20%	½	181-0223	BTS-22K	Horizontal Osc. Coil Shunt
R92	150KΩ 20%	½	181-0154	BTS-150K	Horizontal Osc. Discharge Grid
R93	82KΩ	½	181-0823	BTS-82K	Horizontal Osc. Discharge Plate
R94	4700Ω	½	181-0472	BTS-4700	Horizontal Peaking
R95	100Ω 20%	½	181-0101		Parasitic Suppressor
R96	100Ω 20%	½	181-0101		Parasitic Suppressor
R97	470KΩ 20%	½	181-0474	BTS-470K	Horizontal Output Grid
R98	150Ω	3	189-0020		Horizontal Output Cathode - Wire Wound
R99	6800Ω	3	187-0004		Horizontal Output Screen - Wire Wound
R100	68000Ω	½	181-0682	BTS-6800	Current Limiting
R101	1000Ω 20%	2	183-0102	BTB-1000	Horizontal Linearity Coil Shunt
R102	4700Ω 20%	2	183-0472	BTB-4700	Voltage Divider
R103	1.5Meg 20%	2	189-0019		High Voltage Rectifier Load
R104	1.5Meg 20%	2	189-0019		High Voltage Rectifier Load
R105	3300Ω 5%	2	183-03325	BTB-3300-5%	Voltage Divider
R106	36000Ω	3	189-0023		Voltage Divider - Wire Wound
R107	1800Ω 5%	½	181-01815	BTS-180	Voltage Divider
R108	270Ω	5	187-0003		Voltage Divider - Wire Wound
R109A	3000Ω	15	185-0001		Voltage Divider - Wire Wound
B	1185Ω				Voltage Divider - Wire Wound
R110	4.3Ω	½	189-0007	BW-½-4.3	Horizontal Phase Disc. Diode Filament - Wire Wound
R111	220KΩ 20%	½	181-0224	BTS-220K	Isolation

‡ Items R54 and C63 are combined into one unit.
* Items R76A, R76B, R76C, C72A, C72B and C72C are combined into one unit.
Note 2. Not used in all models.
Note 3. Some models use 5600Ω resistor in this application.
Note 4. Some models use 1800Ω resistor in this application.
Note 5. Not used in late production.

SPEAKER

ITEM No.	RATINGS: FIELD RES.	RATINGS: V. C. IMP.	REPLACEMENT DATA: SYLVANIA PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	PM	3.7Ω	539-0600	ST-108 Mod. P6-X	6A1	
	CONE DIA.	V. C. DIA.				
SP2	5 7/8"	9/16"				

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: SYLVANIA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC @ 2.2A	520VCT .350ADC	5VAC @ 6A	6.3VAC @ 4.2A SEC. 4 6.3VAC @ 8A	141-0013		P-3066 ②	

② 12.6VCT Winding Used as Two 6.3V Windings in Parallel.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING DC RESISTANCE PRI.	SEC.	REPLACEMENT DATA SYLVANIA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T2	145Ω	625Ω	242-0001	A-8111	A-3000	TB0-1	Vertical Block Osc. Trans.
T3	81Ω	9.5Ω	241-0005				Horizontal Output Trans.
	Tap 30Ω	SEC. 2 8.5Ω					
		SEC. 3 0Ω					
		SEC. 4 0Ω					
T4	920Ω Tap 8.5Ω		241-0004	A-8123	A-3037	TS0-5 ①	Vertical Output Trans.
T5A	19.6Ω		100-0005				Horizontal Deflection Coil
B	47.5Ω						Vertical Deflection Coil

① Drill one new mounting hole.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	SEC.	DC RES. PRI.	SEC.	REPLACEMENT DATA SYLVANIA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T6	5.1KΩ	3.7Ω	560Ω	.75Ω	143-0014	A-3823	A-3019	R0-9 ①	① Drill one new mounting hole.

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ↶)	REPLACEMENT DATA SYLVANIA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
L1	.300A	41Ω	1.2 Henries	145-0004	C-2326 ①	C-2996 ①	TR-33000 ①	① Drill one new mounting hole

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	SEC.	REPLACEMENT DATA SYLVANIA PART No.	MEISSNER PART No.	NOTES
L2	Ant. Trans.	0Ω	0Ω	323-0007		
L3	Ant. End Inductor	0Ω				
L4	Ant. Coil	0Ω				
L5	RF End Inductor	0Ω				
L6	RF Coil	0Ω				
L7	Mixer Grid End Inductor	0Ω				
L8	Mixer Grid Coil	0Ω				
L9	Osc. End Inductor	0Ω				
L10	Osc. Coil Shunt	0Ω				
L11	Osc. Coil	0Ω				
L12	1st Video IF	.8Ω				
L13	Fil. Choke	0Ω		147-0014		
L14	Sound Trap	.1Ω		118-0005 *		
L15	2nd Video IF	.7Ω	.7Ω	125-0002		
L16	Fil. Choke	0Ω		147-0014		
L17	3rd Video IF	.7Ω	.7Ω	125-0002		
L18	Fil. Choke	0Ω		147-0014		
L19	4th Video IF	.7Ω	.7Ω	125-0002		
L20	Adj. Sound Trap	.3Ω		118-0007		
L21	Sound Trap	.1Ω	0Ω	118-0005		
L22	5th Video IF	.8Ω	1.2Ω	120-0002		
L23A	Peaking	6.2Ω		131-2006		Red Dot
B	Peaking	9.3Ω				
L24A	Peaking	4.8Ω		131-2005		Green Dot
B	Peaking	6.3Ω				
L25	1st Sound IF	5.7Ω		130-0001		
L26	2nd Sound IF	2.5Ω	2.5Ω	120-0001		
L27	Disc. Pri.	2.5Ω		128-0004		
L28	Disc. Sec.		3Ω	128-0005		
L29	Horiz. Disc.	80ΩCT	38Ω SEC. 2 0Ω	128-0006		
L30	Ring Coil	38Ω		146-0005		
L31	Horiz. Lin.	6Ω		133-0001		
L32	Horiz. Size	43Ω		132-0001		

* In late productions, this trap is removed, and another trap coil (part number 118-0007) is added in the grid circuit of the 3rd Video IF Amp.. (See Schematic)

FUSES

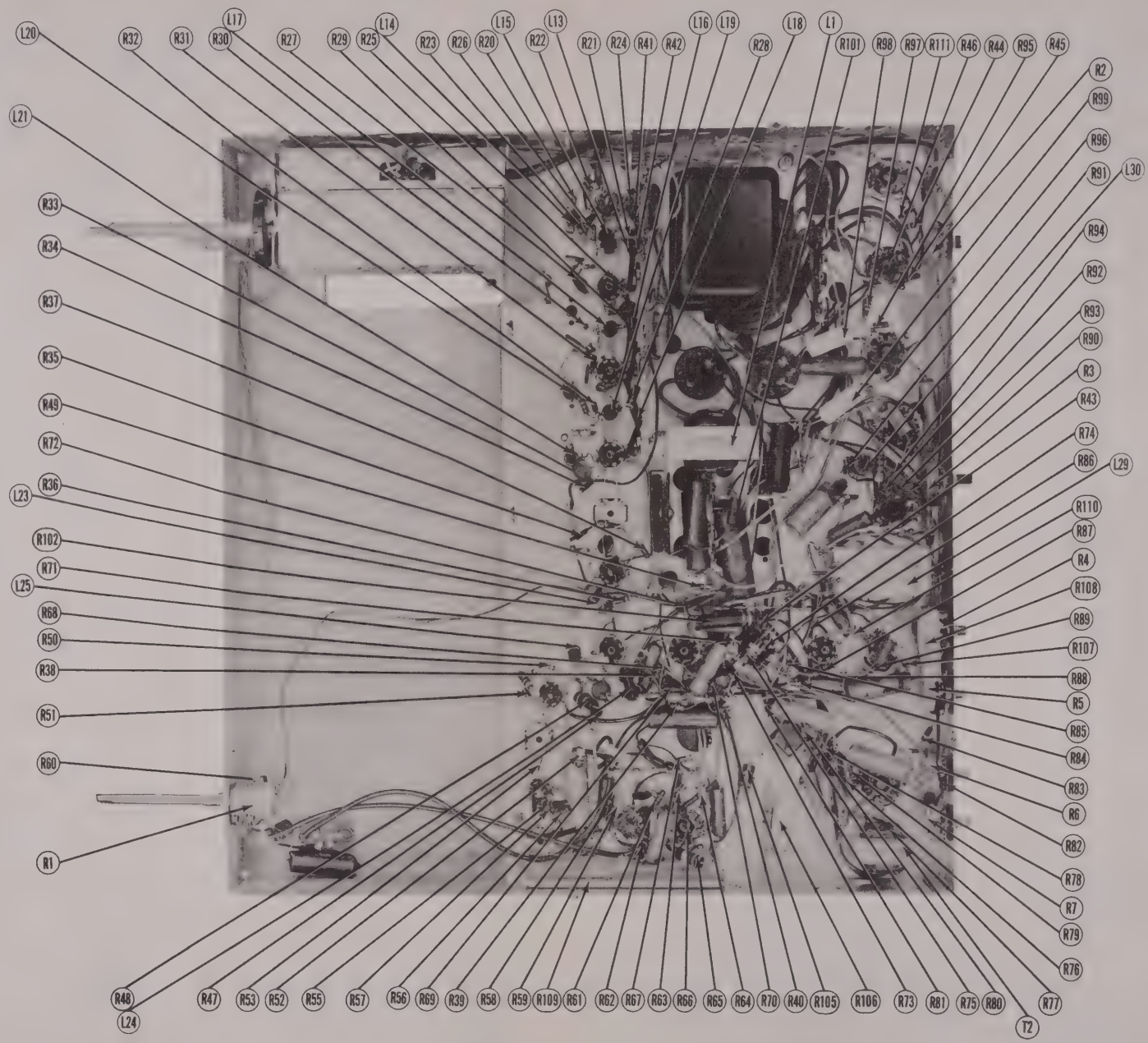
ITEM No.	TYPE	RATING	REPLACEMENT DATA SYLVANIA PART No. FUSE	HOLDER	LITTELFUSE PART No. FUSE	HOLDER	REMARKS
M1	3AG	.250	191-0005	487-0008	312.250	357001	

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA SYLVANIA PART No.		NOTES
M2	Bayonet	6-8	.15	Brown	611-0047		Type #47

MISCELLANEOUS

ITEM No.	PART NAME	SYLVANIA PART No.	NOTES
M3	RF Tuner	323-0007	
M4	Focus Magnet	400-0008	
M5	Ion Trap	400-0011	
M6	Switch	572-0001	High And Low Band Antenna
	Safety Glass	710-0007	
	Knob	740-0011	Center
	Knob	744-0011	Brightness
	Knob	743-0010	TV Tuner



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

WEBSTER-CHICAGO
MODEL 77

Figure 1

WEBSTER-CHICAGO
MODEL 77

GENERAL INFORMATION

The Webster-Chicago Model 77 is designed to play and automatically change up to eight 7" records at a speed of 33-1/3 or 45 RPM. The last record will continue to play until the changer is turned off. Any record may be rejected, while playing, by moving the "Rej." knob to the left and releasing.

The change cycle is very rapid, due to the fact that it takes only one and a half revolutions of the turntable to complete the change cycle.

Power supply is 105-115 volts, 60 cycles A. C. only. Do not, under any circumstances, connect the motor to a Direct Current plug (DC) or alternating current of any other frequency.

Manufactured By:

WEBSTER-CHICAGO CORPORATION
5610 W. Bloomingdale Avenue
Chicago, Illinois

This material compiled and published by

HOWARD W. SAMS & CO., INC., INDIANAPOLIS, INDIANA

COPYRIGHT 1951 • ALL RIGHTS RESERVED

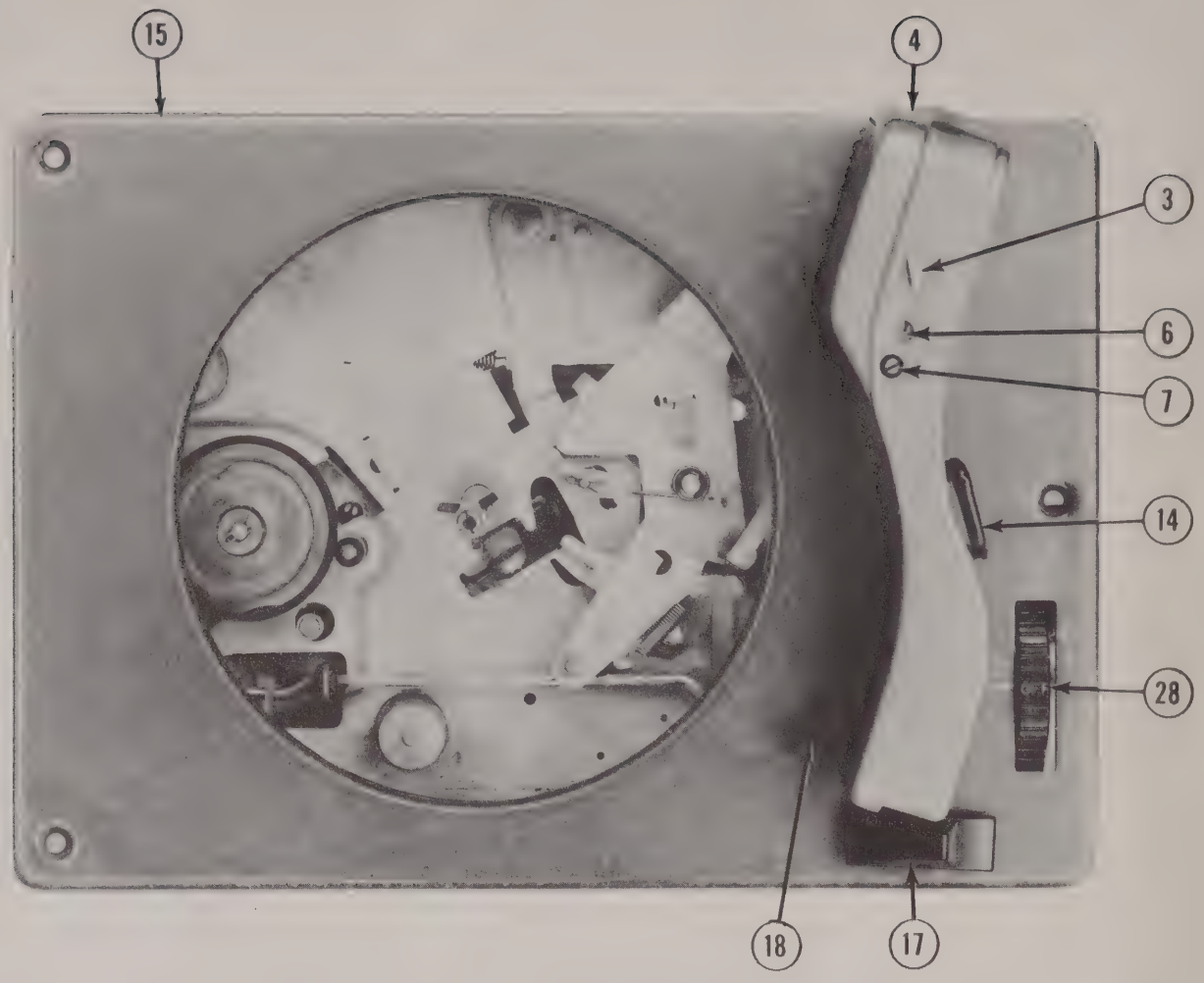


Figure 2

AUTOMATIC OPERATION

To operate this changer, be sure the mechanism is out of cycle and the tone arm is on the arm rest before placing records on the spindle:

1. Remove the needle guard.

2. Place up to eight 7" 33-1/3 RPM, or eight 7" 45 RPM records on the spindle, allowing them to come to a rest on the fingers of the spindle.

NOTE: To play 45 RPM records, an adapter must be inserted in the center hole of the record. Do not intermix 33-1/3 and 45 RPM records.

3. Turn switch on, supplying power to phono motor.

4. Rotate the speed control knob (28) in the direction indicated on the base plate to obtain proper speed for the type records to be played. Turning the speed control wheel (28) from "Off" to either "33" or "45" merely engages the idler wheel (60) with the motor shaft or the spring on the motor shaft. This, in turn, rotates the turntable at the proper RPM.

5. Push the "Rej." knob (17) to the left and release. The mechanism will now automatically play the entire stack of records. The last record will be repeated until the changer is turned off.

6. To reject a record being played, push the "Rej." knob (17) to the left and release.

7. To repeat a record being played, remove all remaining records from the spindle. The record being played will continue to repeat until additional records are placed on the spindle, or the changer turned off.

8. At the conclusion of the last record, allow the changer to go through its change cycle. Then lift the tone arm from the record and place it on the arm rest (16).

9. Rotate the speed control knob (28) to the "Off" position. This merely disengages the idler wheel (60) from the motor shaft which, in turn, stops the rotation of the turntable. The motor will have to be turned off by the switch on the radio control panel.

CHANGE CYCLE

The change cycle may be started by either moving the "Rej." knob (17) to the left, causing the reject lever and wire (44) to pivot the trip pawl (37) toward the turntable hub, or by the velocity trip arm (30) actuating the trip pawl (37).

When the pickup arm (4) moves toward the center of the record, the weight (21) and felt pad cause the velocity trip arm (30) to move with it. The velocity

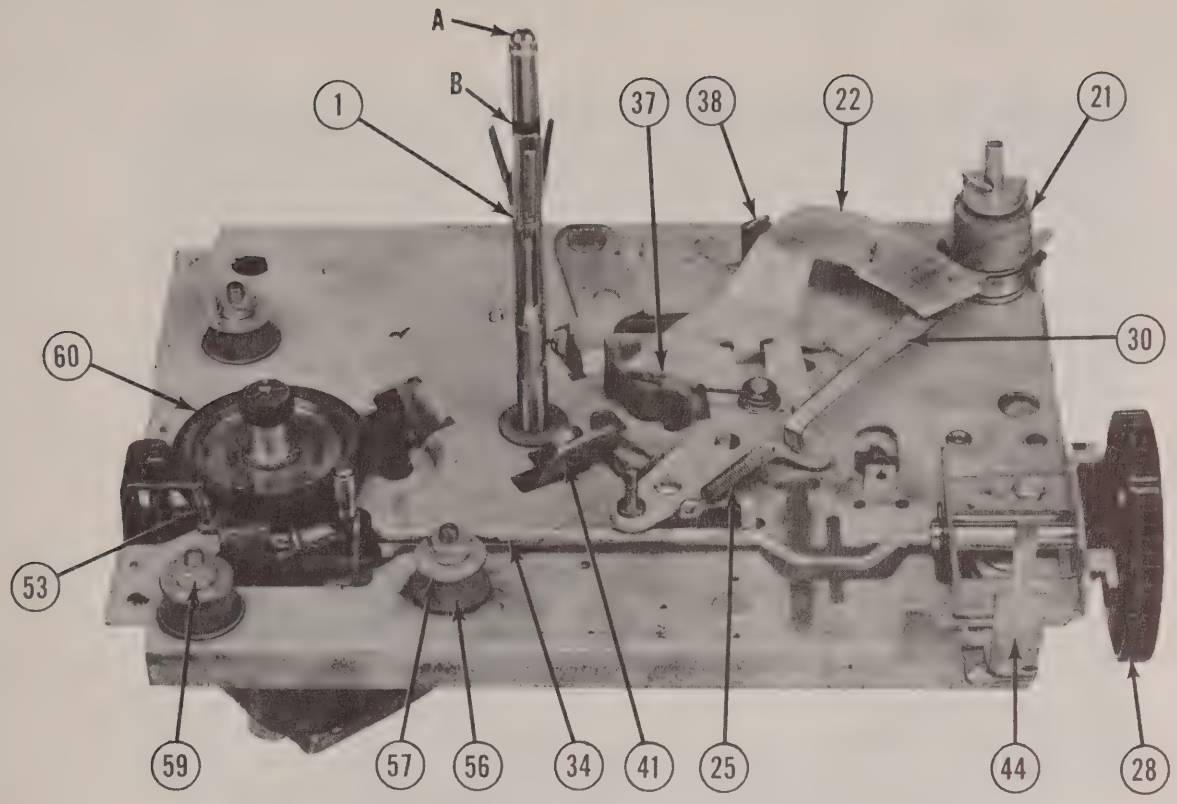


Figure 3

trip arm (30), in turn, pushes against the wire of the pawl (37). Each time the turntable cam hub rotates, the cam lug "D" pushes the trip pawl (37) and trip arm (30) away from the tripping point (see Figures 3 and 4). However, when the pickup arm moves into the fast trip groove of the record, the pawl (37) is pushed quickly, thereby causing the pawl (37) to engage the lug instead of being pushed away by the cam. This starts the change cycle.

The trip pawl, now being actuated by the lug (D), moves the actuating cam (22) in a clockwise direction, causing the cam follower pin (22A) to move into cam track "A" of the turntable (13) (see Figure 4). Also, as the actuating arm (22) moves inward, Finger (22B) pushes against spindle lever (41), causing it to engage cam "C" on the turntable hub. With continued swing of the actuating lever (22), incline (22C) contacts the height-adjusting pin (7) raising the pickup arm and swinging it out clear of the records.

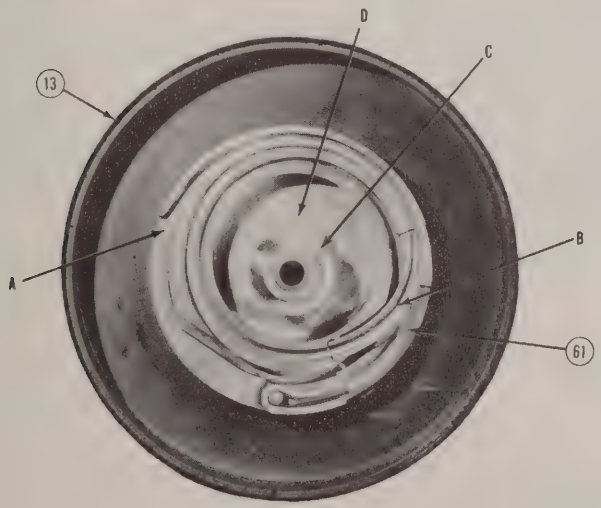


Figure 4

The roller of the spindle (41) now rides down the incline of cam "C", actuating the spindle assembly and thereby dropping a record to the turntable.

The spindle lever roller (41) now rides up cam "C" and then drops away by gravity. The cam follower pin (22A), riding in the cam groove (A) of the turntable, reverses the movement of the actuating arm (22), thereby swinging the tone arm in and setting it down on the record.

The cam follower pin (22A) now enters the open space in the cam track (A) and is pulled away from the cam by spring (42). This completes the change cycle.

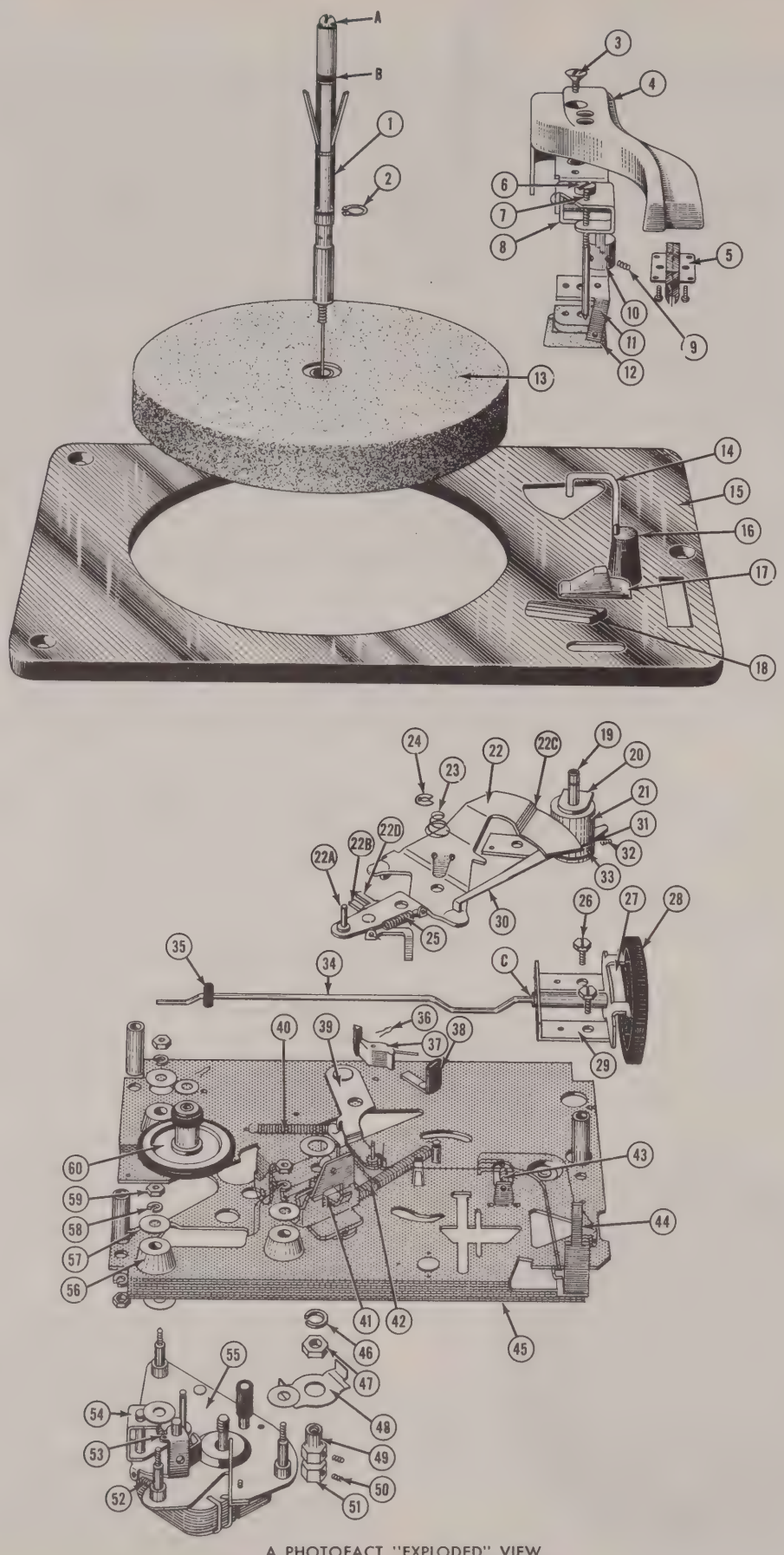
ADJUSTMENTS

Pickup Arm Set-Down:

The set-down point is adjusted by turning the eccentric adjustment screw (6) located in the top of the pickup arm (see Figure 2). First loosen the pickup mounting screw (3) slightly. (This screw is the anchor post for the eccentric adjustment lever.) Then, insert a screwdriver in the slot (6) and move the pickup arm in, or out, slightly, as required. Then, tighten the mounting screw (3), being careful not to change the setdown adjustment setting.

Pickup Arm Height (See Figure 2):

The pickup arm height is adjusted by turning height



A PHOTOFACT "EXPLODED" VIEW

© Howard W. Sams & Co., Inc. 1951

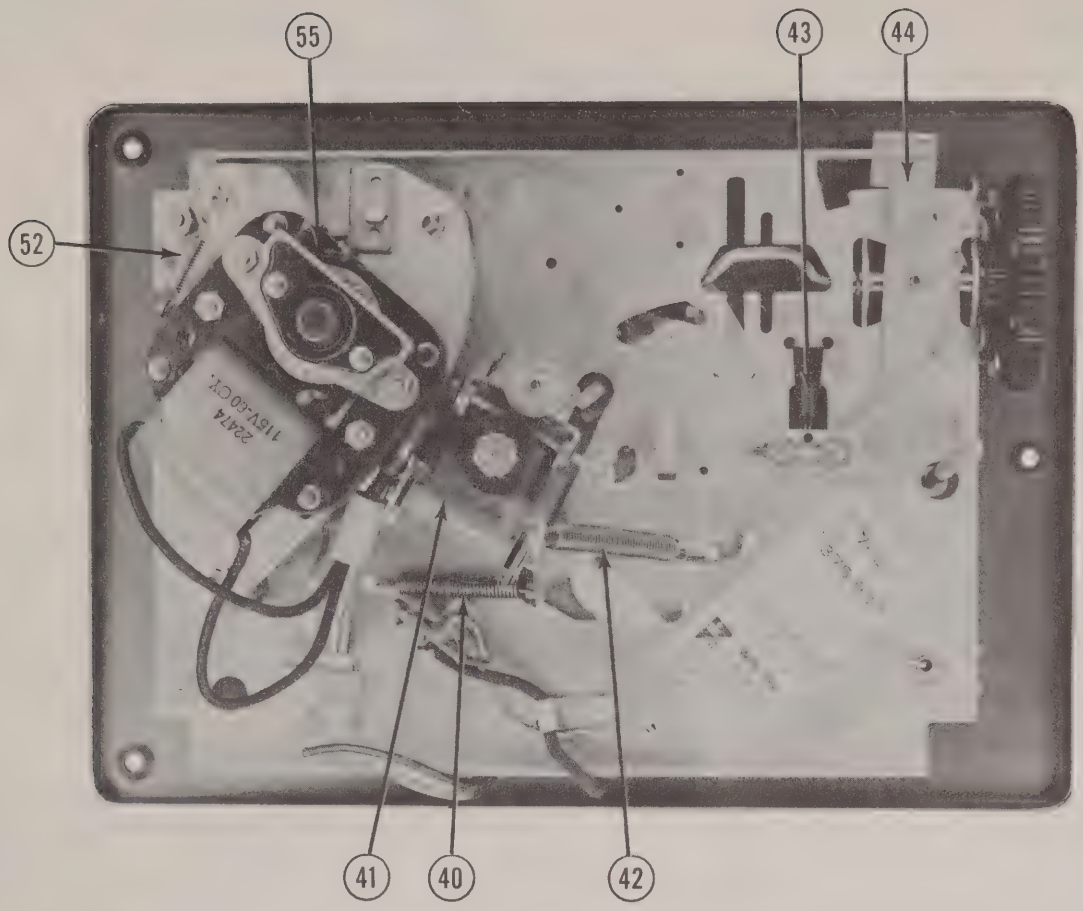


Figure 5

adjusting pin (7). Turning this pin in raises the pickup arm, while turning the adjustment pin out lowers the pickup arm.

Spindle Adjustments
(See Exploded View and Figure 3):

1. Do not turn the power on.

2. Move the "Reject" knob (17) to the left, then release.

3. Rotate the turntable clockwise, by hand, until the three fingers are fully closed.

4. With a screwdriver, turn the adjustment screw "A" until the rubber expansion ring "B" expands sufficiently to support a stack of records.

5. Rotate the turntable on through the change cycle and see if the expansion rubber is entirely free when the changer is out of cycle. It should be possible to move the top of the spindle shaft up and down slightly.

6. Put a stack of records on the spindle and make certain that the expansion rubber is correctly adjusted.

NOTE: Any grease or oil on the expansion rubber will make it slick and the records will not be held up. Remove any grease or oil with carbon tetrachloride.

TROUBLES

Records Fail to Drop to the Turntable:

1. Check for foreign matter inside the spindle:

(a) If foreign matter, dust, etc., are inside the spindle, it may prevent the fingers from closing fully and at the same time. Clean the spindle with carbon tetrachloride.

NOTE: Do not oil the spindle.

2. Bent or broken spindle finger.

3. Insufficient pull on the wire inside the spindle.

(a) To adjust, be sure the set screw (50), holding the nut (51), is tight.
(b) Loosen the set screw in nut (49).
(c) Trip the mechanism and turn the turntable until the fingers close as much as possible.
(d) Back off nut (49) until the fingers are just closed into the shaft.
(e) Notice the position of any one of the flat sides of the nut (49) and tighten the nut three, or more, "flats." Tighten the set screw.

NOTE: If the mechanism stalls in cycle and all other adjustments are correct, loosen the set screw and back off the nut one or two "flats."

Stalls in Cycle:

1. Motor out of alignment.

   (a) Tap the motor to accurately set the self-aligning bearing.

2. Check for binding parts.

3. Spindle wire not adjusted properly:

   (a) See "Records Fail to Drop to the Turntable - 3."

Turntable Turns at 45 RPM at Either Speed Setting:

1. Motor shaft sleeve in raised position on shaft:

   (a) If the motor shaft sleeve is too high on the shaft, the idler wheel (60) will contact it in either control position. Gently force the sleeve down on the shaft until the idler just clears it when in the 45 RPM position.

More Than One Record Drops at a Time:

1. Spindle out of adjustment:

   (a) See Spindle Adjustment."

Pickup Arm Fails to Set Down on Record Properly:

1. Pickup leads tight.

2. Pickup arm out of adjustment:

   (a) See "Pickup Arm Set-Down."

Causes of "Wow:"

1. Badly warped records.

2. Oil or grease on motor shaft, idler wheel (60) or turntable rim:

   (a) Clean with carbon tetrachloride.

Automatic Trip Fails to Function:

1. Trip pawl (37) may be dirty and sticky:

   (a) Remove pawl and clean with carbon tetrachloride.

2. Velocity trip arm (30) may be bent, resulting in not making contact with trip pawl (37).

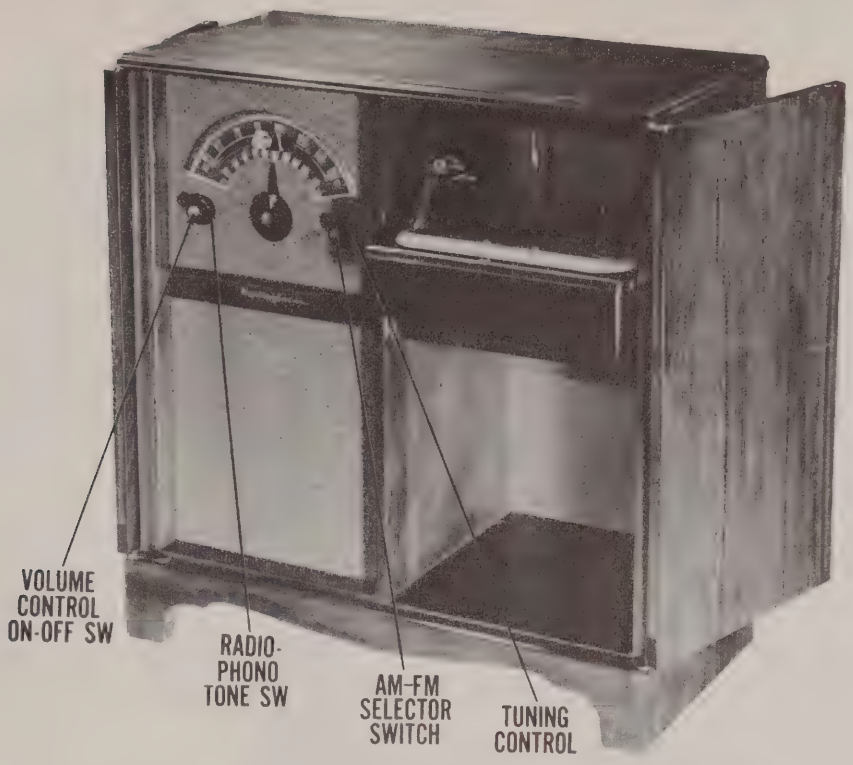
3. Bent "pawl tail" (37).

4. Velocity trip arm (30) binding and not following the movement of the pickup arm.

PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	11X529	Spindle Cap and Wire Assembly	29		Speed Control Mounting Bracket
	11X528	Main Spindle Assembly	30	45P871	Trip Lever
2		Retainer-Turntable	31	25P420	Felt Washer
3	26P912	Tone Arm Mounting Screw	32		Set Screw
4	42P209	Tone Arm	33		Collar
5		Pickup Cartridge	34		Speed Control Lever
6		Eccentric Set-Down Adjustment Screw	35	25P074	Rubber Grommet
			36	50P225	Retainer Pin for Item 37
7	41P713	Height Adjusting Pin	37	11X499	Pawl and Wire Assembly
8	21X304	Tone Arm Mounting Assembly	38	24P043	Rubber Sleeve Bumper
9		Set Screw	39		Trip Pawl Lever
10		Tone Arm Shaft Collar	40	46P209	Tension Spring
11		Bracket for Item 12	41	11X495	Spindle Actuating Assembly
12		Tone Arm Balance Weight	42	46P196	Tension Spring
13	11X489	Turntable	43	46P223	Tension Spring-Trip Lever
14		Tone Arm Holder	44	11X493	Manual Trip Lever Assembly
15		Top Base Plate	45		Motor Board
16		Tone Arm Rest	46		Lock Washer-Sprindle Mounting
17	49P132	Reject Control	47		Nut-Spindle Mounting
18		Needle Pad	48	45P891	Pull-Down Spring
19		Tone Arm Shaft	49	41P687	Lock Nut
20		Bracket	50		Set Screw
21	11X496	Automatic Trip Assembly Complete	51	41P688	Hold-Down Anchor
22	11X498	Tone Arm Actuating Lever Assembly.	52	46P212	Tension Spring
			53	46P130	Tension Spring
23	49P206	Spring for Item 22	54		Idler Wheel Mounting Bracket
24	25P436	Retainer for Item 22	55	15X103	Motor
25	46P145	Tension Spring for Item 22	56	25P363	Shock Mount-Motor
26		Mounting screw for Item 29	57	25P367	Washer-Motor Mount
27		Leaf Spring	58	25P211	Lock Washer-Motor Mount
28	11X501	Speed Control Knob, Lever Bracket Assembly	59	26P046	Nut-Motor Mount
			60	11X507	Idler Wheel

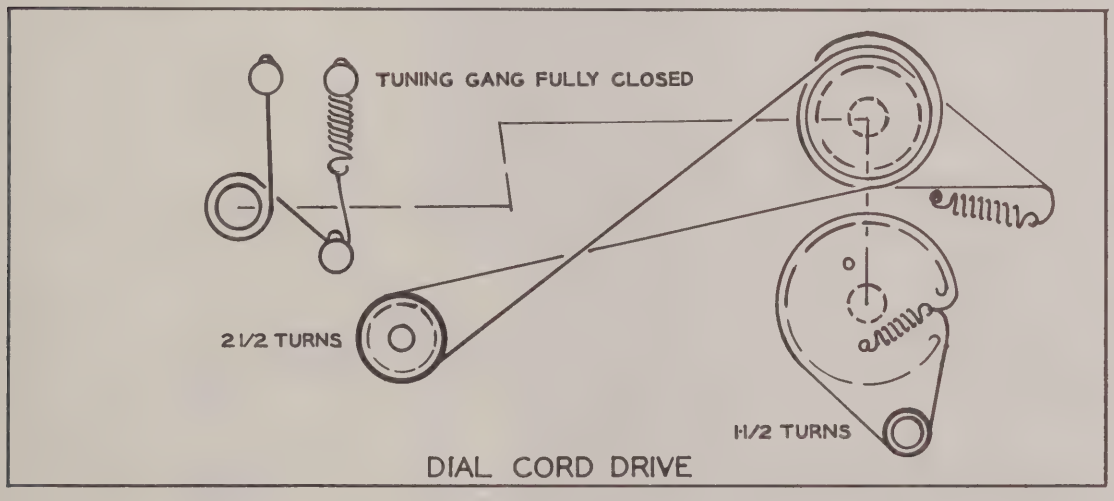
WESTINGHOUSE MODEL
H-328C7, U (Ch. V-2136-4)



WESTINGHOUSE MODEL
H-328C7, U (Ch. V-2136-4)

TRADE NAME	Westinghouse, Model H-328C7, U (Ch. V-2136-4)		
MANUFACTURER	Westinghouse Electric Corp., Receiver Div., Sunbury, Pennsylvania		
TYPE SET	AC Operated Combination Phono.-Radio, AM-FM Superheterodyne Receiver with Loop Antenna		
TUBES (SEVEN)	Types 12AT7 FM RF-Mixer, 12BE6 AM Conv.-FM Osc., 12BA6 1st. IF Amp., 6BJ6 2nd. FM IF, 12AL5 Ratio Det., 12AV6 DET.-AVC-AF, 50L6GT Power Output		
POWER SUPPLY	110-120 Volts AC	RATING	.56 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1615KC	FREQ. MOD.	88-108MC

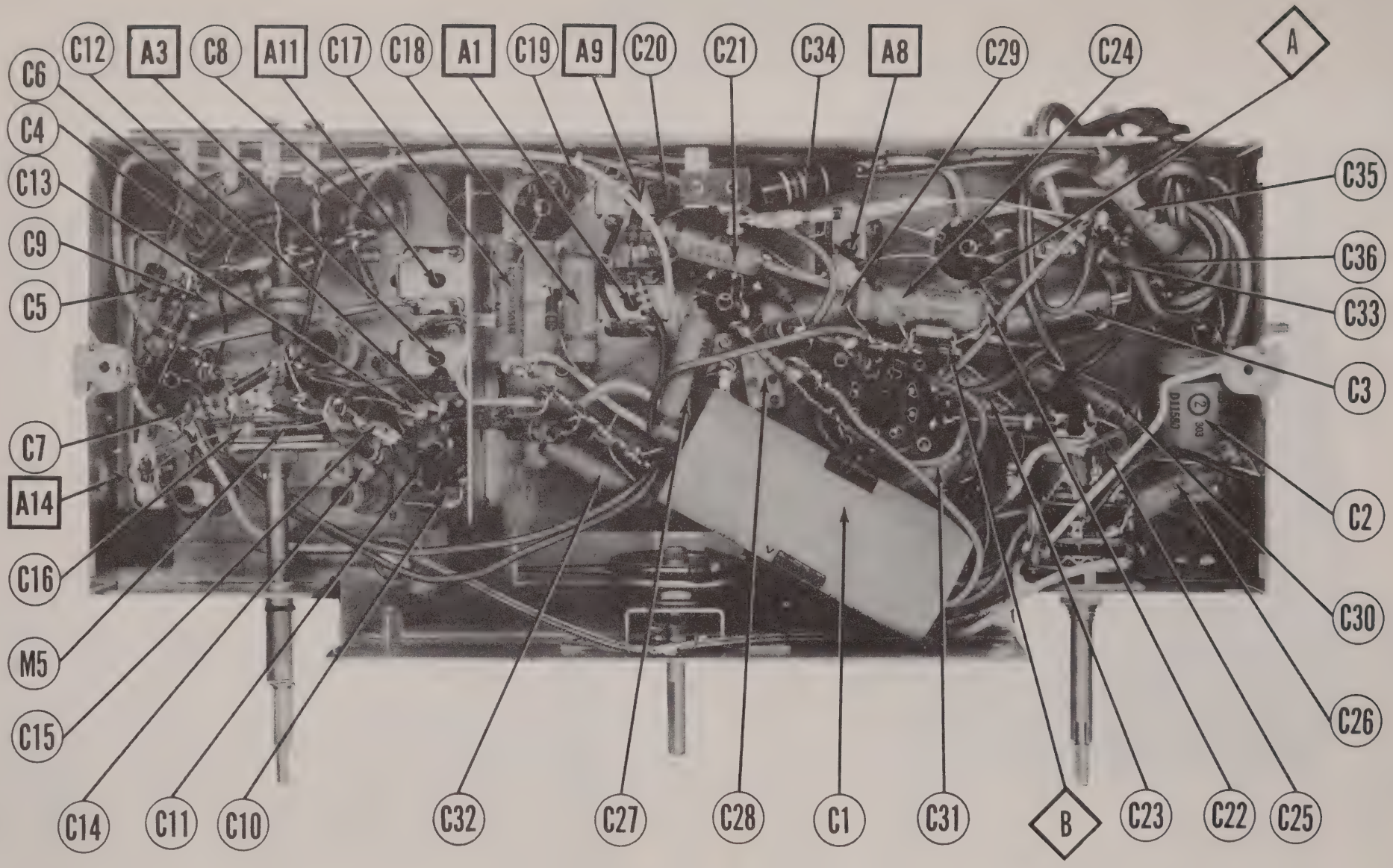
FOR SERVICE INFORMATION ON RECORD CHANGER SEE WESTINGHOUSE MODEL V-9481 SIMILAR TO MISC. SERIES 700F 33/45 IN PHOTOFACT SET 75 FOLDER 11 OR RECORD CHANGER MANUAL CM-3.

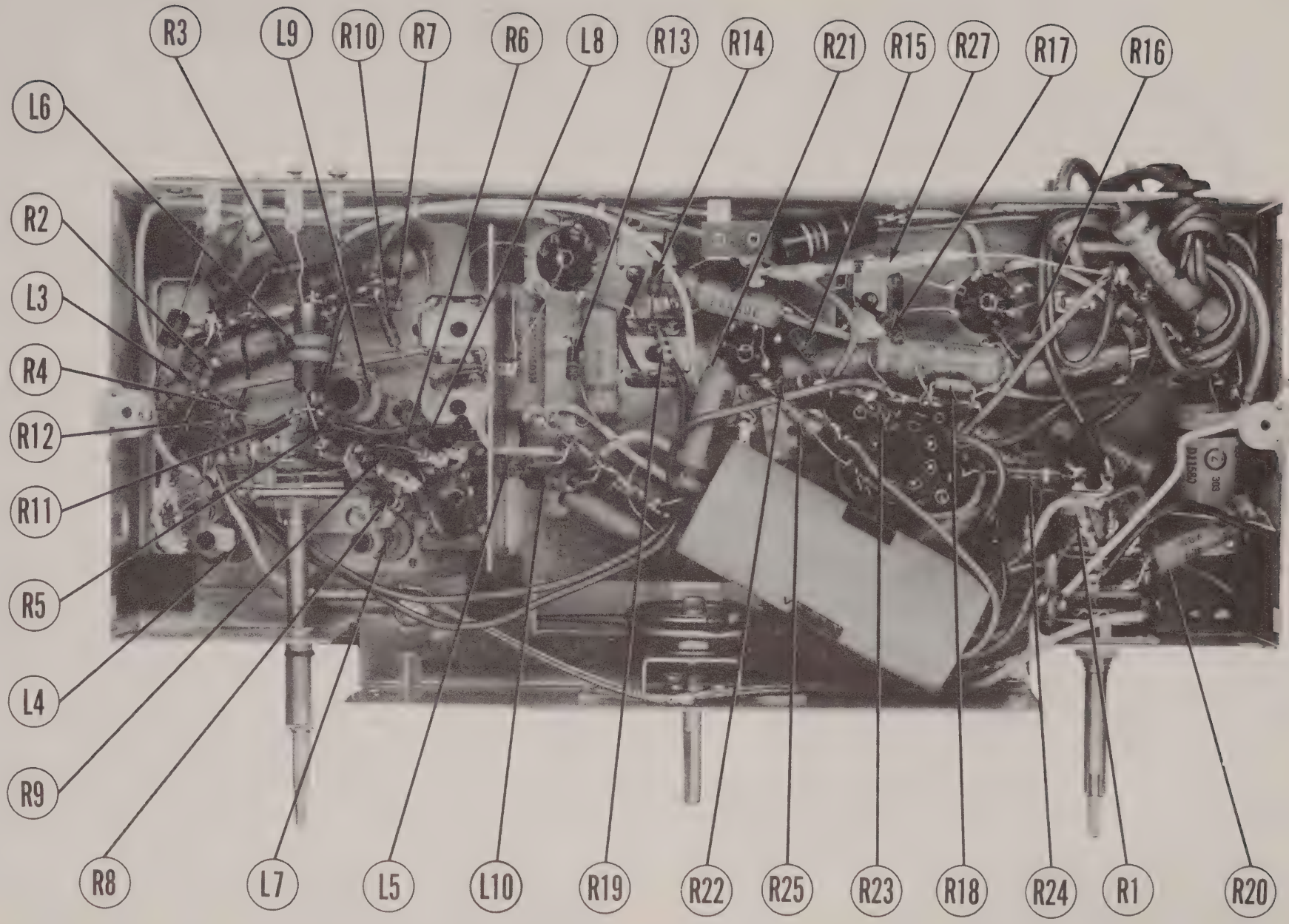


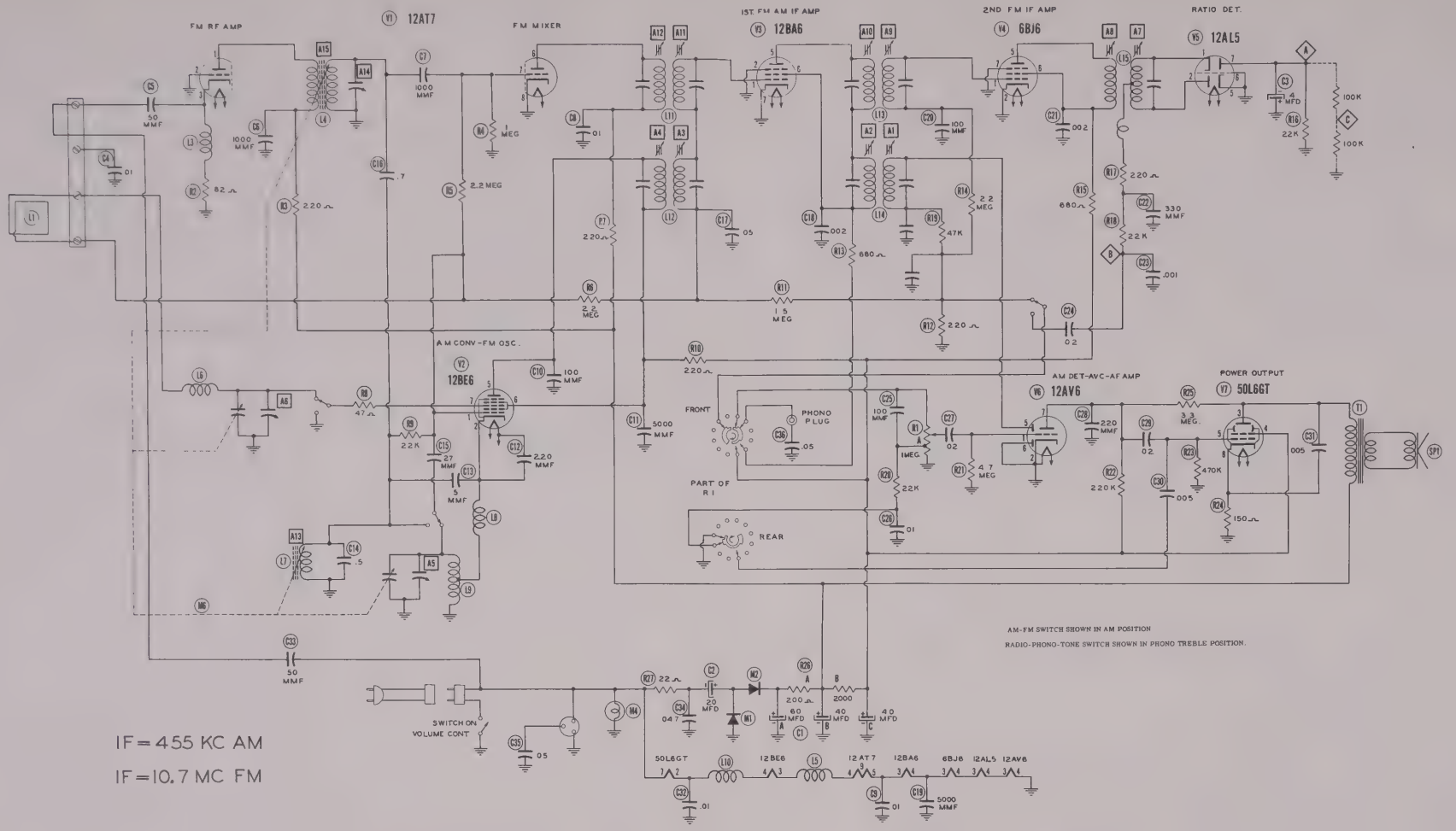
DIAL CORD DRIVE

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America


C12
A3
C8
A11
C17
C18
A1
C19
A9
C20
C21
C34
A8
C29
C24
A
C6
C4
C13
C9
C5
C35
C36
C33
C3
C7
A14
C16
M5
C15
C2
C30
C26
C14
C11
C10
C32
C27
C28
C1
C31
B
C23
C22
C25


R3
L9
R10
R7
R6
L8
R13
R14
R21
R15
R27
R17
R16
L6
R2
L3
R4
R12
R11
R5
L4
R9
R8
L7
L5
L10
R19
R22
R25
R23
R18
R24
R1
R20



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12AT7	205VDC	0V	.8VDC	52VAC	42VAC	205VDC	-1.2VDC	0V
V 2	12BE6	‡ 4.5VDC ‡ -.9VDC	.1VDC	52VAC	65VAC	115VDC	115VDC	.1VDC	
V 3	12BA6	-.4VDC	0V	42VAC	30VAC	100VDC	100VDC	0V	
V 4	6BJ6	-.2VDC	0V	30VAC	24VAC	105VDC	105VDC	0V	
V 5	12AL5	-.5VDC	-.3VDC	24VAC	11VAC	0V	0V	-.7VDC	
V 6	12AV6	-.5VDC	0V	11VAC	0V	-.3VDC	0V	70VDC	
V 7	50L6GT	0V	65VAC	190VDC	115VDC	0V	0V	117VAC	7VDC

‡ TAKEN WITH VTVM

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12AT7	†420Ω	0Ω	85Ω	44Ω	36Ω	†420Ω	700KΩ ‡1.8MEG ▲500Ω	0Ω
V 2	12BE6	22KΩ	1Ω	45Ω	52Ω	†2500Ω	2500Ω		
V 3	12BA6	1.8Meg	0Ω	36Ω	29Ω	†3KΩ	†3KΩ	0Ω	
V 4	6BJ6	2.8Meg	0Ω	29Ω	24Ω	†3KΩ	†3KΩ	0Ω	
V 5	12AL5	Inf.	Inf.	24Ω	12Ω	0Ω †250KΩ	0Ω	22KΩ	
V 6	12AV6	4.7Meg	0Ω	12Ω	0Ω	▲500KΩ	0Ω	†220KΩ	
V 7	50L6GT	Inf.	54Ω	†450Ω	12.2K	470K	Inf.	70Ω	150Ω

‡ TAKEN IN AM POSITION
▲ TAKEN IN FM POSITION
† MEASURED FROM OUTPUT OF M2

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1951

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap fully closed and set pointer to last reference mark at low frequency end of dial.
Use isolation transformer if available. If not, connect a .1MFD capacitor in series with low side of signal generator and chassis.

AM ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to stator on rear section of tuning gang. Low side to chassis.	455KC (400∿ Mod)	AM (CW)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1615KC	"	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		Loop	1400KC	"	Tune for max. output.	"	A6	Rock tuning gang while adjusting A6 for maximum output.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

AM alignment should be performed before attempting FM alignment.
Connect two matched 100KΩ (± 1%) resistors in series from Point (A) to chassis. The junction of these two resistors is alignment Point C as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	.1MFD	High side to pin 7 (Grid) of 12AT7 (V1) Low side to chassis.	10.7MC (unmod.)	FM (CCW)	Tuning gang fully closed.	DC probe to Point (A). Common to Point (C).	A7	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
5.	"	"	"	"	"	DC probe to Point (A). Common to chassis.	A8, A9 A10, A11 A12	Adjust for maximum deflection Repeat step 4. Continue with step 7.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	SCOPE CONNECT	ADJUST	REMARKS
4.	.1MFD	High side to pin 1 (Grid) of 12BA6 (V3). Low side to chassis.	10.7MC (450KC SWP)	FM (CCW)	Point of non-interference.	Vert. amp. to Point (A). Low side to chassis.	A8, A9, A10	Disconnect stabilizor capacitor C3. Adjust for maximum amplitude and symmetry as per fig.1
5.	"	High side to pin 7 (Grid) of 12AT7 (V1) Low side to chassis.	"	"	"	"	A11, A12	"
6.	"	"	"	"	"	Vert. amp. to Point (B). Low side to chassis.	A7	Reconnect capacitor C3. Adjust A7 so 10.7MC occurs at center of crossover lines as per fig. 2. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	300Ω carbon resistor	High side thru 300Ω to "FM" ant. terminal No. 1. Low side to terminal No. 2	98MC (unmod.)	FM	98MC	DC probe to Point (A). Common to chassis.	A13, A14	Adjust for maximum deflection.
8.	"	"	105MC	"	Tune for max. deflection.	"	A15	"
9.	"	"	90MC	"	"	"	A14	Rock tuning gang while adjusting for maximum deflection. Repeat steps 7, 8, & 9 until no further improvement can be made.

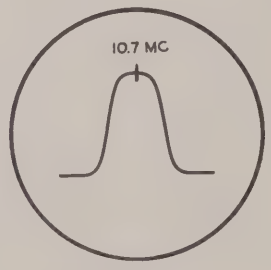


FIG. 1

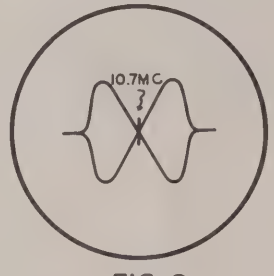


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		WESTINGHOUSE PART No.	STANDARD REPLACEMENT		
V1	FM RF Amp. FM Mixer	12AT7	12AT7	9A	
V2	AM Converter -FM Oscillator	12BE6	12BE6	7CH	
V3	1st. FM-AM IF Amp.	12BA6	12BA6	7BK	
V4	2nd. FM IF Amp.	6BJ6	6BJ6	7CM	
V5	Ratio Detector	12AL5	12AL5	6BT	
V6	AM Det.-AVC-AF	12AV6	12AV6	7BT	
V7	Power Output	50L6GT	50L6GT	7AC	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

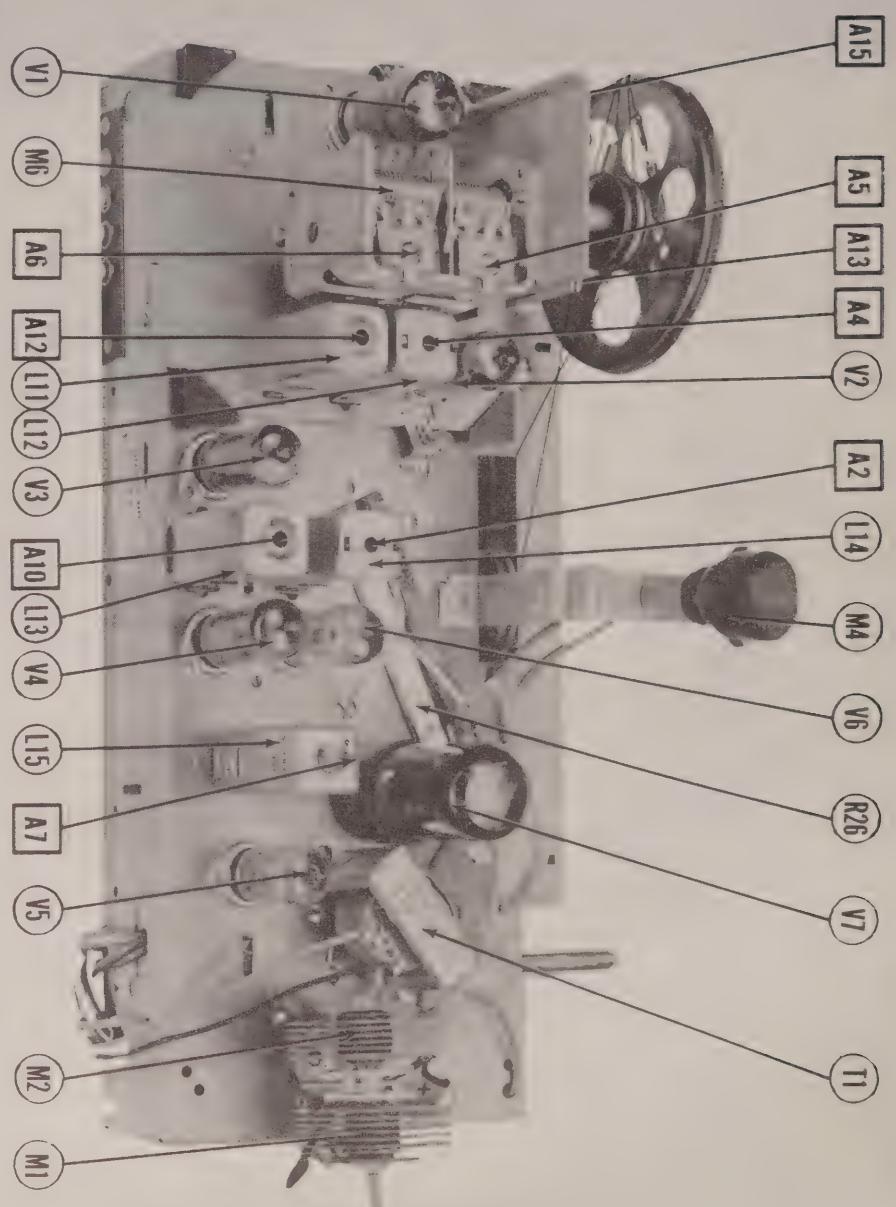
ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA WESTINGHOUSE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	60	250	V-9919	PRS450/60				TVL-2575	Filter
B	40	250		PRS450/40-40				TVA-1613	Filter
C C	40	250							Filter
C2	20	200	V-9823	PRS250/20		BR2025		TVA-1508	Voltage Doubler
C3	4	50	V-4637	PRS150/4		BR415		TVA-1303	Stabilizing Cap.
C4	.01	200	RCP10W2103M	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Ant. Isolation
C5	50		V-5658-10		D6-500	5W5Q5	GP1K-500	1FM-45	FM Ant. Coupling
C6	1000		V-9863-1	BPD-001	D6-102	PTE6D1	801-.001	6TM-D1	FM RF Amp. Decoupling
C7	1000		V-9863-1	BPD-001	D6-102	PTE6D1	801-.001	6TM-D1	RF Coupling
C8	.01	400	RCP10W4103M	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	FM Mixer Decoupling
C9	.01	400	RCP10W4103M	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	FM Mixer Fil.
C10	100	500	RCM20D101J	1468-0001	D6-101	5W5T1	GP1K-101	1FM-31	AM Conv. -FM Osc. Dec.
C11	5000		V-5596	BPD-005	D6-502	PTE6D5	811-.005	6TM-D5	Am Conv. FM Osc. Screen
C12	220		R5CC20ZY221M	SI220	D6-221	5W5T2	GP2K-221	1FM-32	AM Conv. FM Osc. Cath.
C13	5		R2CC30UK050D	SI5N750			N750K-050		FM Osc. Feedback
C14	.5				TCZ-.5				Fixed Trimmer
C15	27		R2CC30UK270K		TCN-27				Osc. Grid Cap.
C16	.7		V-5658-4		TCZ-.68				Osc. Coupling †
C17	.05	200	RCP10W2503M	P288-05	DF-503	PTE4S5		2TM-S5	AVC Filter
C18	.002	600	RCP10W6202M	P688-002	D6-202	PTE6D2	GP2-333-202	6TM-D2	1st. IF Decoupling
C19	5000		V-5596	BPD-005	D6-502	PTE6D5	811-.005	6TM-D5	1st. IF Fil.
C20	100	500	RCM20A101M	1468-0001	D6-101	5W5T1	GP1K-101	1FM-31	AVC Filter
C21	.002	600	RCP10W6202M	P688-002	D6-202	PTE6D2	GP2-333-202	6TM-D2	FM IF Amp. Decoupling
C22	330	500	RCM20A331M	1468-00035	D6-331	5W5T3	GP2K-331	1FM-335	RF Bypass
C23	.001	600	RCP10W6102M	P688-001	D6-102	PTE6D1	GP2L-102	6TM-D1	De-emphasis
C24	.02	200	RCP10W2203M	P488-02	DF-203	PTE4S2		2TM-S2	Audio Coupling
C25	100	500	RCM20A101M	1468-0001	D6-101	5W5T1	GP1K-101	1FM-31	Tone Comp.
C26	.01	400	RCP10W2103M	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Tone Comp.
C27	.02	200	RCP10W2203M	P488-02	DF-203	PTE4S2		2TM-S2	Audio Coupling
C28	220	500	RCM20A221M	1468-0002	D6-221	5W5T2	GP2K-221	1FM-32	AF Amp. Plate
C29	.02	200	RCP10W2203M	P488-02	DF-203	PTE4S2		2TM-S2	Audio Coupling
C30	.005	400	RCP10W4502M	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Tone Comp.
C31	.005	400	RCP10W4502M	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Output Plate
C32	.01	400	RCP10W4103M	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Output Fil.
C33	50		V-5658-10		D6-500	5W5Q5	GP1K-500	1FM-45	Line Ant. Coupling
C34	.047	400	V-10157-4473M	P488-047	DF-503	PTE4S5		4TM-S47	Line Filter
C35	.05	200	RCP10W2503M	P288-05	DF-503	PTE4S5		2TM-S5	Phono Motor Isolation
C36	.05	200	RCP10W2503M	P288-05	DF-503	PTE4S5		2TM-S5	Phono Isolation

† Some models use .68MMF in this application.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA Westinghouse PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	1Meg	½	V-10359-1				Volume Control and SW (Off-ON) Tapped @ 250KΩ
B	Switch		Not req.				Radio - Phono - Tone

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	Westinghouse PART No.	IRC PART No.	
R2	82Ω	½	RC20AE820M	BTS-82	FM RF Amp. Cathode
R3	220Ω	½	RC20AE221M	BTS-220	FM RF Amp. Decoupling
R4	1Meg	½	RC20AE105M		FM Mixer Grid
R5	2.2Meg	½	RC20AE225M	BTS-2.2Meg	AVC Network
R6	22Meg	½	RC20AE226M	BTS-22Meg	AVC Network
R7	220Ω	½	RC20AE221M	BTS-220	FM Mixer Plate
R8	47Ω	½	RC20AE470M		Parasitic Suppressor
R9	22KΩ	½	RC20AE223M	BTS-22K	FM Osc. Grid
R10	220Ω	½	RC20AE221M	BTS-220	Decoupling
R11	1.5Meg.	½	RC20AE155M	BTS-1.5Meg.	AVC Network
R12	470KΩ	½	RC20AE474M	BTS-470K	Diode Load
R13	680Ω	½	RC20AE681M	BTS-680	1st. IF Amp. Decoupling
R14	2.2Meg	½	RC20AE225M	BTS-2.2Meg.	2nd. FM IF Amp. Grid
R15	680Ω	½	RC20AE681M	BTS-680	2nd. FM IF Amp. Decoupling
R16	22KΩ	½	RC20AE223M	BTS-22K	Ratio Det. Diode Load
R17	220Ω	½	RC20AE221M	BTS-220	Balancing
R18	22KΩ	½	RC20AE223M	BTS-22K	De-emphasis
R19	47KΩ	½	RC20AE473M	BTS-47K	Diode Filter
R20	22KΩ	½	RC20AE223M	BTS-22K	Tone Compensation
R21	4.7Meg.	½	RC20AE475M	BTS-4.7Meg	AF Amp. Gird
R22	220KΩ	½	RC20AE224M	BTS-220K	AF Amp. Plate
R23	470KΩ	½	RC20AE474M	BTS-470K	Output Grid
R24	150Ω	1	RC30AE151K	BTA-150	Output Cathode
R25	3.3Meg	½	RC20AE335M	BTS-3.3Meg	Feedback
R26A	200Ω	10	V-10054-1		Filter - Wire Wound
B	2000Ω				Filter - Wire Wound
R27	22Ω	3	V-6067-7		Surge Limiter - Wire Wound

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		WESTINGHOUSE	STANCOR	MERIT	CHICAGO	
	PRI.	SEC.	PRI.	SEC.	PART No.	PART No.	PART No.	PART No.	
T1	2.5KΩ	3Ω	260Ω	.6Ω	V-9770-2 ①	A-3376	A-3025 ②	R0-2 ②	① Includes Speaker ② Drill one new mounting hole

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			WESTINGHOUSE PART No.	VIKING PART No.	QUAM PART No.	
	FIELD	V. C. IMP.				
SP1	PM	3Ω	V-9770-2	10J12	10A4A	
	CONE DIA.	V. C. DIA.				
SP2	9½"	1"				

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	Westinghouse PART No.	MEISSNER PART No.	IRC PART No.	
L1	AM Ant. Coil						
L2	FM Ant. Coil						
L3	RF Choke	.85Ω		V-9099-1		CLA	(1.2 Microhenries)
L4	FM RF Coil	0Ω	0Ω	V-9674			
L5	Fil. Choke	.85Ω		V-9099-1		CLA	(1.2 Microhenries)
L6	Ant. Loading Coil	1.9Ω		V-6157-1			
L7	FM Osc. Coil	0Ω		V-9675			Core Part No. V-9676-1
L8	RF Choke	.85Ω		V-9099-1		CLA	(1.2 Microhenries)
L9	AM Osc. Coil	10Ω		V-9672			Tap 1.2Ω
L10	Fil. Choke	.85Ω		V-9099-1		CLA	(1.2 Microhenries)
L11	1st. FM IF	1.6Ω	1.6Ω	V-9688			
L12	1st. AM IF	16Ω	16Ω	V-9649-1			
L13	2nd. FM IF	1.6Ω	1.6Ω	V-9642			
L14	2nd. AM IF	16Ω	16Ω	V-10350-1			
L15	Ratio Det. Trans.	2.7Ω	.4	V-9828			

PARTS LIST AND DESCRIPTIONS (Continued)

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA			NOTES
	CURRENT	WESTINGHOUSE PART No.	SYLVANIA PART No.	SELETRON PART No.	
M1	.108A	V-9640	ND-5	5M1	
M2	.108A	V-9640	ND-5	5M1	

PHONO CARTRIDGE and NEEDLE

ITEM No.	REPLACEMENT DATA							REMARKS
	WESTINGHOUSE PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M3		AC-AG-J	A-AG	W26B	A66U	33-B	0-2 or S-2	

ASTATIC, SHURE, AND ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED.

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					WESTINGHOUSE PART No.		
M4	Bayonet	115-125	10 watts	Clear	10C7DC		

MISCELLANEOUS

ITEM No.	PART NAME	WESTINGHOUSE PART No.	NOTES
M5	Switch	V-96881-1	AM-FM
M6	2 Gang Var. Cap.	V9671-2	(44-524MMF, 40-216MMF)
A14	Trimmer	V-9670	FM RF Adj.
	Dial	V-10308-1	
	Cabinet	V-1230-1	
	Dial Pointer	V-10310-1	
	Knob	V-10408-2	Off-On - Volume
	Knob	V-10408-1	AF-FM
	Knob	V-8961-2	Radio - Phono
	Knob	V-9104-9	Tuning

PHOTOFACT* Folder

*TRADE MARK

WESTINGHOUSE MODEL H-642K20A (Ch. V-2194, A, -1)

IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . *unless* it has been purchased as part of a *complete* volume of PHOTOFACTS assembled in a DeLuxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

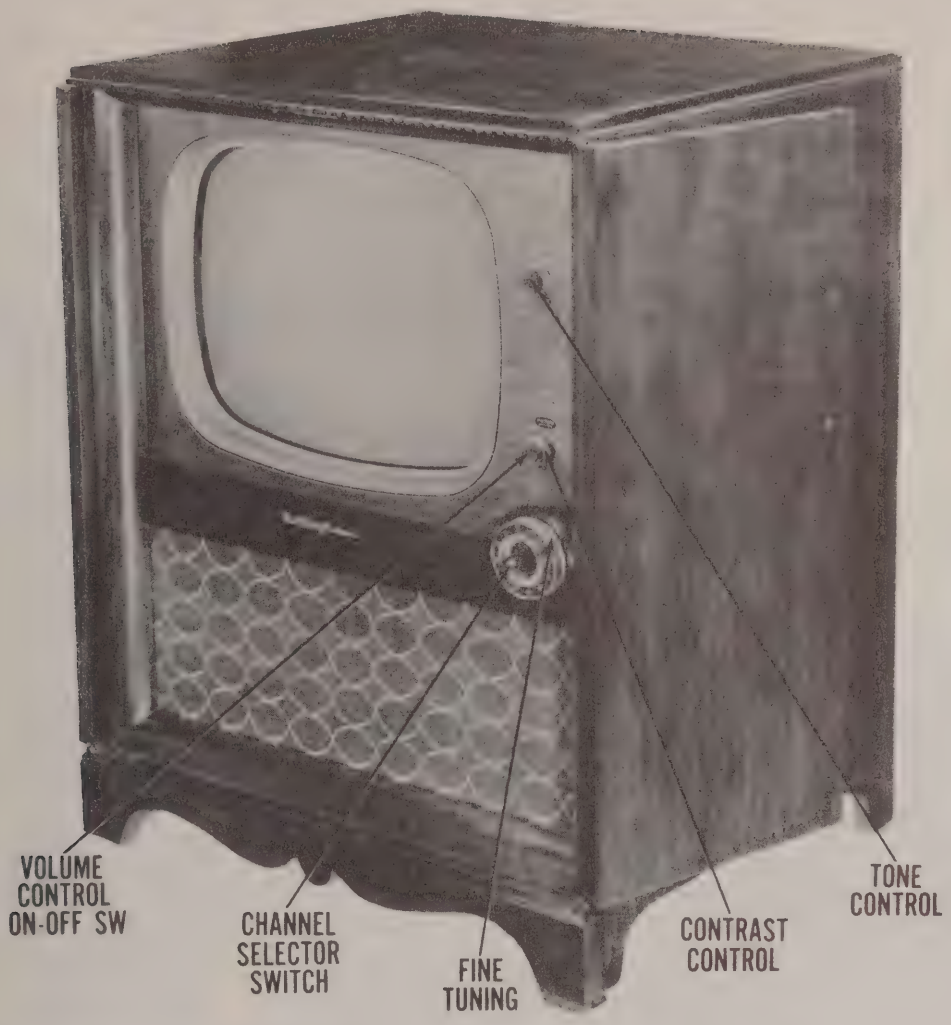
WESTINGHOUSE MODEL H-642K20A (Ch. V-2194, A, -1)

HOWARD W. SAMS & CO., INC. • Indianapolis, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

DATE 7-51 SET 137 FOLDER 16

WESTINGHOUSE MODEL H-642K20A (Ch. V-2194, A, -1)



WESTINGHOUSE MODEL H-642K20A (Ch. V-2194, A, -1)

TRADE NAME	Westinghouse, Model H-642K20A (Ch. V-2194, V-2194A Or V-2194-1)
MANUFACTURER	Westinghouse Elect. Corp., Home Receiver Div., Sunbury, Pa.
TYPE SET	Television Receiver
TUBES	Twenty Two
POWER SUPPLY	110-120 Volts AC - 60 Cycle
RATING	1.82 Amp. @ 117 Volts AC
TUNING RANGE-	Channels 2 thru 13

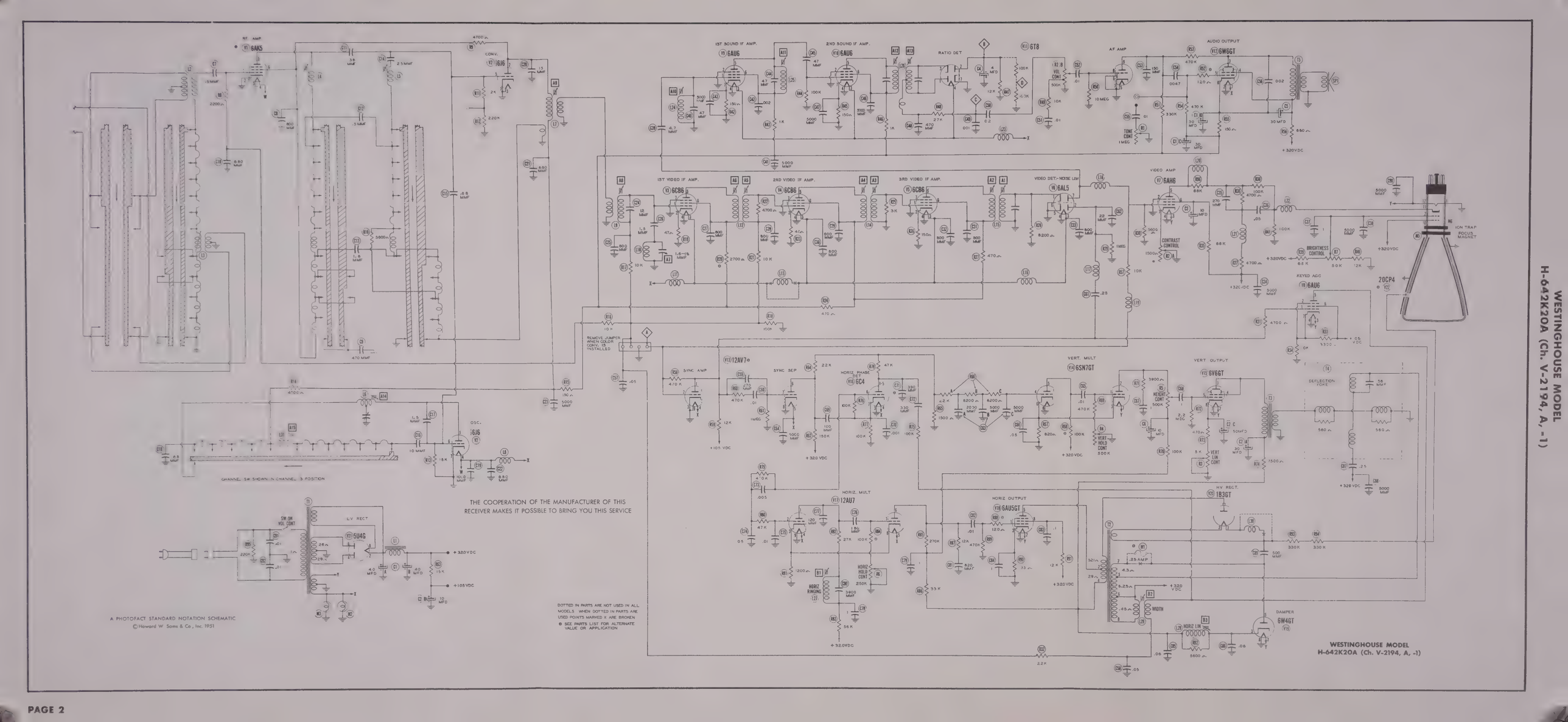
INDEX

Alignment Instructions 6, 7
Disassembly Instructions 11
Horizontal Sweep Circuit Adjustments 11
Parts List And Description 12, 13, 14
Photographs
- Cabinet - Rear View 11
- Capacitor And Alignment Identification 4, 9
- Chassis - Top View 3
- Photographs (Continued)
- RF Tuner 10
- Resistor And Inductor Identification 15, 16

Schematic 2
Schematic (Alternate Tuner) 7
Tube Placement Charts 5
Voltage And Resistance Measurements 8

HOWARD W. SAMS & CO., INC. • Indianapolis 1, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America



THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

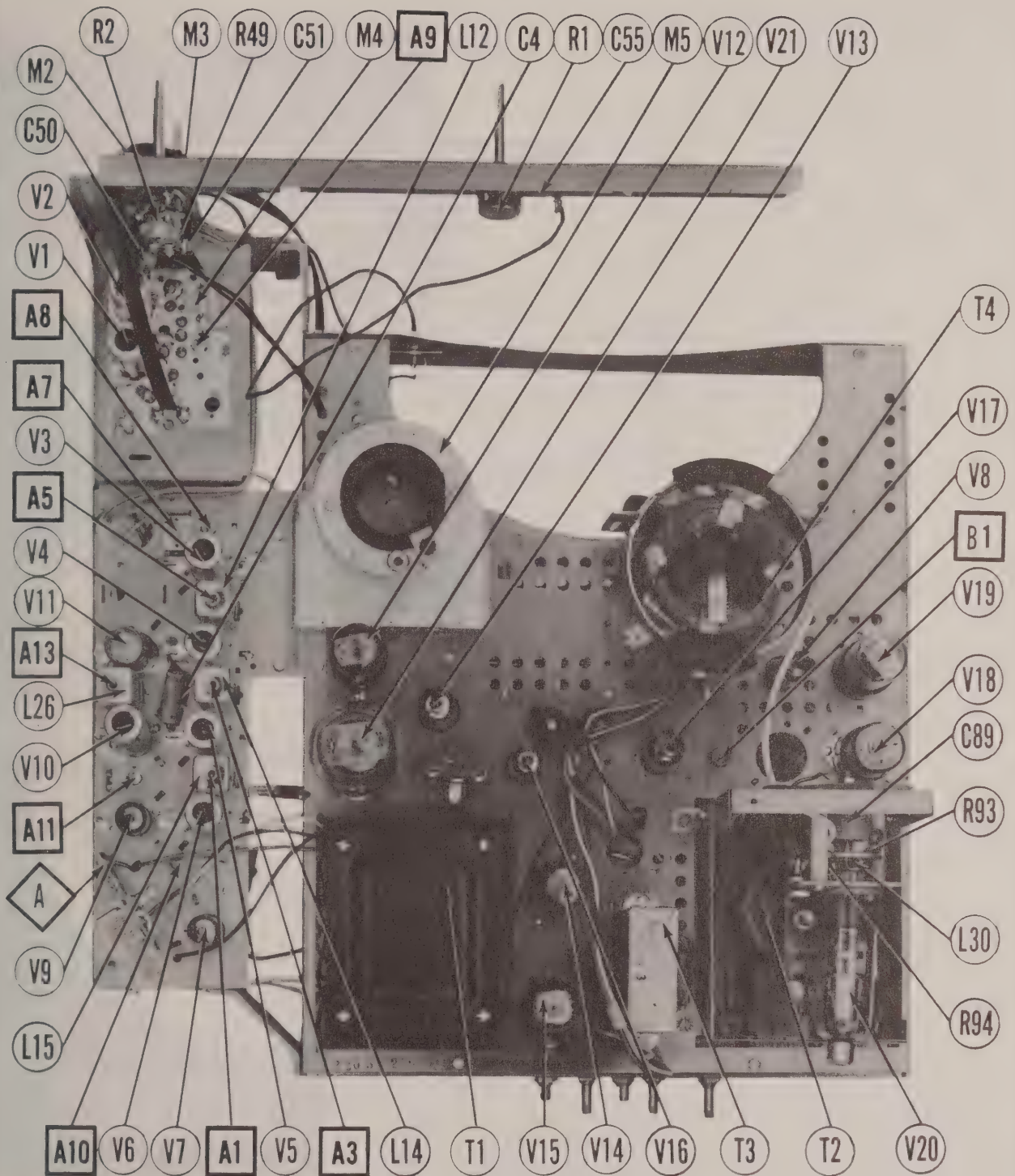
DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN.

⊕ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

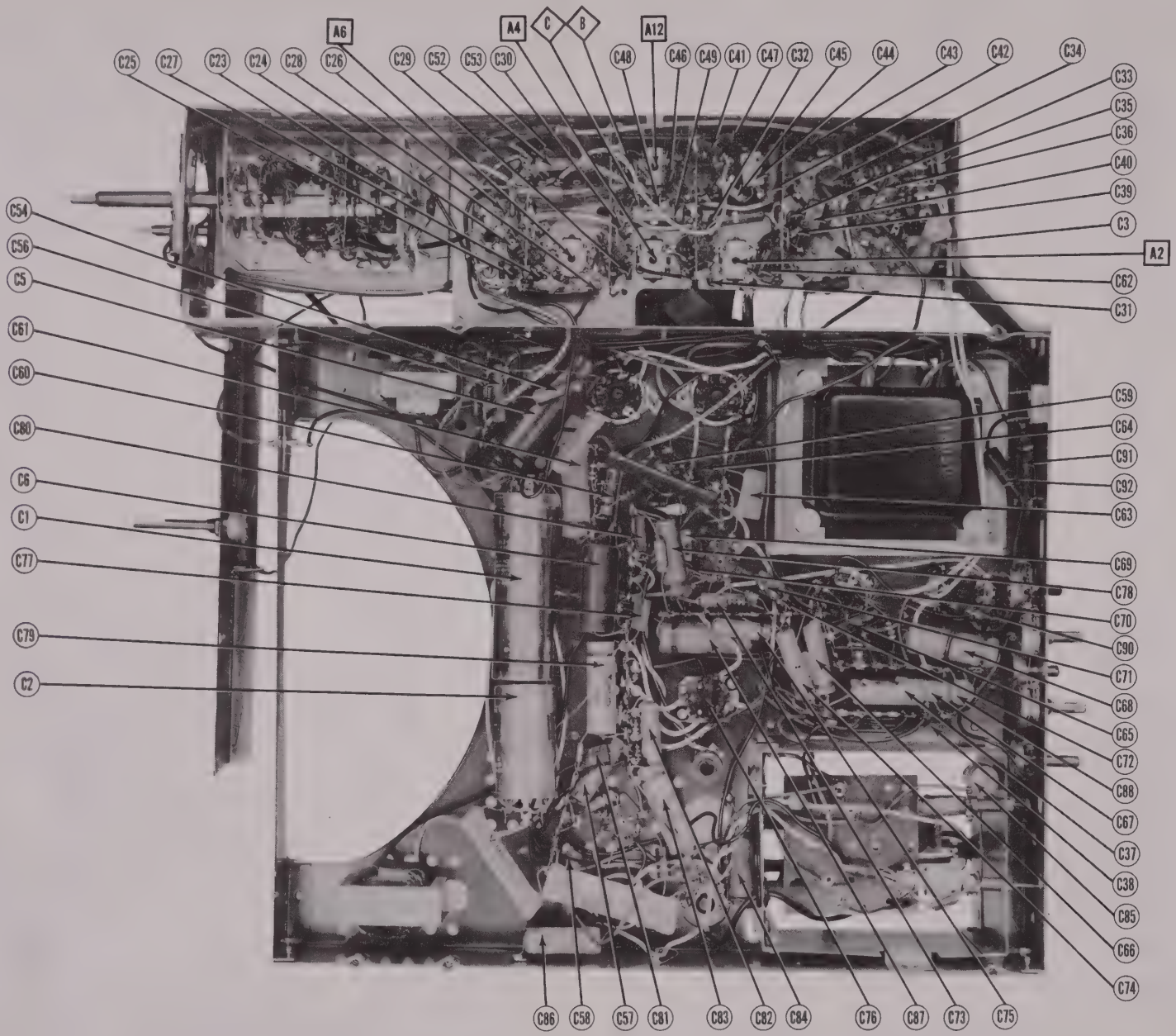
A PHOTOFACT STANDARD NOTATION SCHEMATIC
©Howard W Sams & Co., Inc. 1951

WESTINGHOUSE MODEL H-642K20A (Ch. V-2194, A, -1)

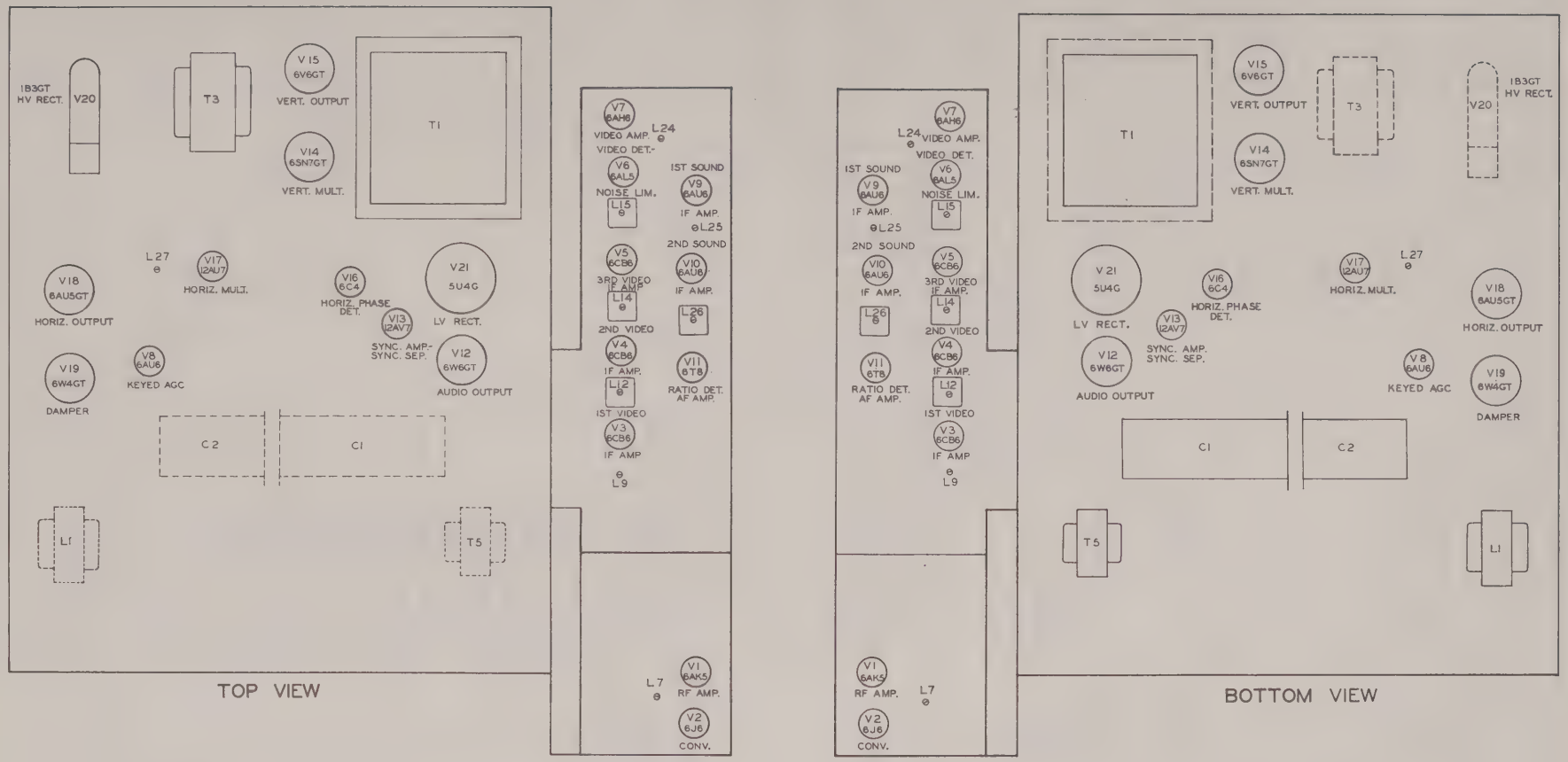
WESTINGHOUSE MODEL H-642K20A (Ch. V-2194, A, -1)



CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



TUBE PLACEMENT CHART

WESTINGHOUSE MODEL
H-642K20A (Ch. V-2194, A, -1)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The end of the high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube to disable the high voltage.

VIDEO IF ALIGNMENT

Remove the converter tube and replace it with a 6J6 which has pin 1 removed, to disable the local oscillator and prevent erroneous indications. During video IF alignment it is necessary to detune the primary winding of the transformer to which the sweep generator is connected. This may be accomplished by clipping an alligator clip to pin 5 of the preceeding stage, the capacity thus added will sufficiently detune the transformer.
CAUTION: B+
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to pin 1 (Grid) of 6CB6 (V5). Low side to chassis.	44MC (10MC SWP)	42.25MC 45.75MC	Any	Vert. amp. to Point Ⓐ. Low side to chassis.	A1, A2	Adjust for response curve similar to fig. 1.
2.	"	High side to pin 1 (Grid) of 6CB6 (V4). Low side to chassis.	"	"	"	"	A3, A4	Adjust for response curve similar to fig. 1 with markers slightly lower.
3.	"	High side to pin 1 (Grid) of 6CB6 (V3). Low side to chassis.	"	"	"	"	A5, A6	Remove detuning clip and short the link connection L7 and L9. Adjust for response curve similar to fig. 1 with markers slightly lower than step 2.
4.	"	High side to an ungrounded tube shield floating over dummy converter tube (V2). Low side to chassis.	"	41.25MC 42.25MC 45.75MC	"	"	A7, A8, A9	Turn A7 fully clockwise. Adjust A8 and A9 for response curve similar to fig. 2. Adjust A7 for minimum marker indication at the 41.25MC point on response curve. Retouch A8 and A9 for response similar to fig. 2.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (± 1%) resistors in series from Point B to B-. The junction of these two resistors is alignment Point Ⓓ. as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
5.	.001MFD	High side to Point A . Low side to chassis.	4.5MC (unmod.)	Any	DC probe to Point Ⓑ. Common to chassis.	A10, A11, A12	Adjust for maximum deflection.
6.	"	"	"	"	DC probe to Point Ⓒ. Common to Point Ⓓ.	A13	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	.001MFD	High side to Point A . Low side to chassis.	4.5MC (450KC SWP)	4.5MC	Any	Vert. amp. to Point Ⓑ. Low side to chassis.	A10, A11, A12	Disconnect stabilizer capacitor C4. Adjust for maximum amplitude and symmetry as per fig. 3.
6.	"	"	"	"	"	Vert. amp. to Point Ⓒ. Low side to chassis.	A13	Reconnect capacitor C4. Adjust A13 so 4.5MC occurs at center of crossover lines as per fig. 4. SLIGHTLY retouch A12 for maximum amplitude and straightness of crossover lines.

OSCILLATOR ALIGNMENT (TUNER NO. V-9886-5, -6)

The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC SWP)	211.25MC 215.75MC	13	Vert. amp. to Point Ⓐ. Low side to chassis.	A14	Adjust to place sound marker as shown in fig. 5. The video marker should be at 50%
8.	"	"	207MC (10MC SWP)	205.25MC 209.75MC	12	"		Check to see if markers can be properly placed well within the range of the fine tuning control. If not make compromise adjustment of A14.
			201MC (10MC SWP)	199.25MC 203.75MC	11			
			195MC (10MC SWP)	193.25MC 197.75MC	10			
			189MC (10MC SWP)	187.25MC 191.75MC	9			
			183MC (10MC SWP)	181.25MC 185.75MC	8			
			177MC (10MC SWP)	175.25MC 179.75MC	7			
9.	"	"	85MC (10MC SWP)	83.25MC 87.75MC	6	"	A15	Adjust to place sound marker as shown in fig. 5. The video marker should be at 50%.
10.	"	"	79MC (10MC SWP)	77.25MC 81.75MC	5	"		Check all low band channels to see if the markers can be properly placed well within the range of the fine tuning control. If not make compromise adjustment of A15.
			69MC (10MC SWP)	67.25MC 71.75MC	4			
			63MC (10MC SWP)	61.25MC 65.75MC	3			
			57MC (10MC SWP)	55.25MC 59.75MC	2			

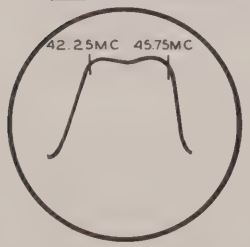


FIG. 1

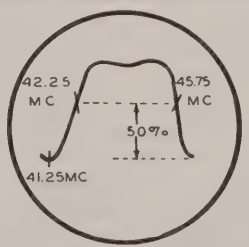


FIG. 2

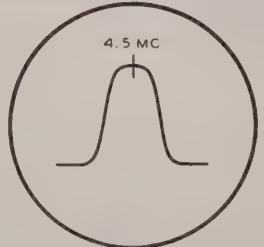


FIG. 3

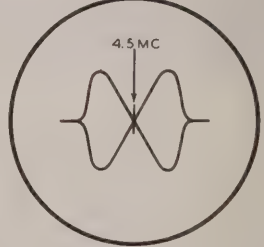


FIG. 4

ALIGNMENT INSTRUCTIONS (CONT.)

OSCILLATOR ALIGNMENT (TUNER NO. V-10279-1)

The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC SWP)	211.25MC 215.75MC	13	Vert. amp. to Point (A). Low side to chassis.	A16	Adjust to place sound marker as shown in fig. 5. The video marker should be at 50%.
12.	"	"	270MC (10MC SWP)	205.25MC 209.75MC	12	"		Check all high band channels to see if markers can be properly placed well within the range of the fine tuning control. If not make compromise adjustment of A16.
			201MC (10MC SWP)	199.25MC 208.75MC	11			
			195MC (10MC SWP)	193.25MC 197.75MC	10			
			189MC (10MC SWP)	187.25MC 191.75MC	9			
			183MC (10MC SWP)	181.25MC 185.75MC	8			
			177MC (10MC SWP)	175.25MC 179.75MC	7			
13.	"	"	85MC (10MC SWP)	83.25MC 87.75MC	6	"	A17	Adjust to place sound marker as shown in fig. 5. The video marker should be at 50%.
14.	"	"	69MC (10MC SWP)	67.25MC 71.75MC	4		A18	"
15.	"	"	57MC (10MC SWP)	55.25MC 59.75MC	2		A19	"

THE RF AND MIXER PORTIONS OF THESE TUNERS HAVE BEEN ALIGNED AT THE FACTORY AND ARE VERY STABLE. ALIGNMENT OF THESE PORTIONS SHOULD NOT BE REQUIRED IN THE FIELD.

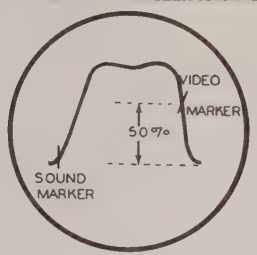
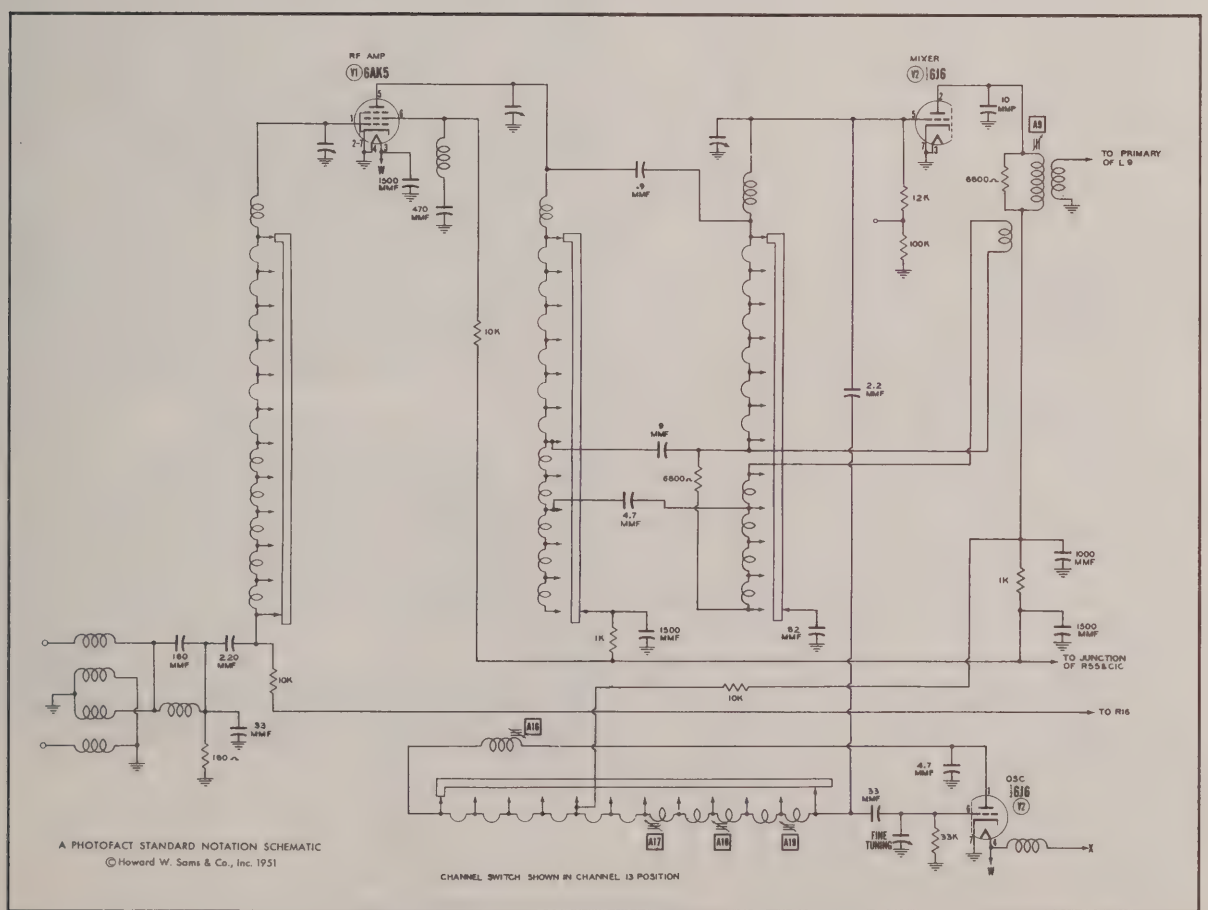


FIG. 5



ALTERNATE TUNER SCHEMATIC

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AK5	-.6VDC	0V	0V	6.3VAC	75VDC	75VDC	0V		
V 2	6J6	55VDC	115VDC	0V	6.3VAC	-2.2VDC	§-7.2VDC	0V		
V 3	6CB6	-.5VDC	.4VDC	6.3VAC	0V	95VDC	95VDC	0V		
V 4	6CB6	-.5VDC	.5VDC	6.3VAC	0V	110VDC	110VDC	0V		
V 5	6CB6	0V	1.6VDC	6.3VAC	0V	105VDC	105VDC	0V		
V 6	6AL5	0V	-8VDC	5.5VAC	0V	0V	0V	-2.2VDC		
V 7	6AH6	-1.8VDC	0V	6.3VAC	0V	170VDC	100VDC	.1VDC		
V 8	6AU6	41VDC	80VDC	6.3VAC	0V	-1VDC	105VDC	80VDC		
V 9	6AU6	0V	0V	6.3VAC	0V	105VDC	105VDC	1.4VDC		
V 10	6AU6	0V	0V	6.3VAC	0V	105VDC	105VDC	1.2VDC		
V 11	6T8	-.3VDC	-.6VDC	-.3VDC	6.3VAC	0V	0V	0V	-.6VDC	75VDC
V 12	6W6GT	0V	0V	■120VDC	■140VDC	■.1VDC	■.1VDC	6.3VAC	■11VDC	
V 13	12AV7	41VDC	-.4VDC	0V	6.3VAC	6.3VAC	26VDC	-1VDC	0V	0V
V 14	6SN7GT	-39VDC -41VDC	185VDC	2.8VDC	1.5VDC	45VDC	2.8VDC	6.3VAC	0V	
V 15	6V6GT	0V	6.3VAC	265VDC	265VDC	0V	0V	0V	17VDC	
V 16	6C4	.2VDC	0V	0V	6.3VAC	.2VDC	1.5VDC	2.5VDC		
V 17	12AU7	70VDC	.6VDC	5.2VDC	6.3VAC	6.3VAC	130VDC	-15VDC -8VDC	5.2VDC	0V
V 18	6AU5GT	-22VDC	6.3VAC	2.8VDC	0V	*	0V	0V	155VDC	
V 19	6W4GT	0V	0V	560VDC	0V	310VDC	0V	6.3VAC	0V	
V 20	1B3GT	* DO NOT MEASURE								
V 21	5U4G	0V	330VDC	0V	310VAC	0V	310VAC	0V	330VDC	
V 22	20CP4	0V	150VDC	PIN 10 310VDC	PIN 11 80VDC	PIN 12 6.3VAC				

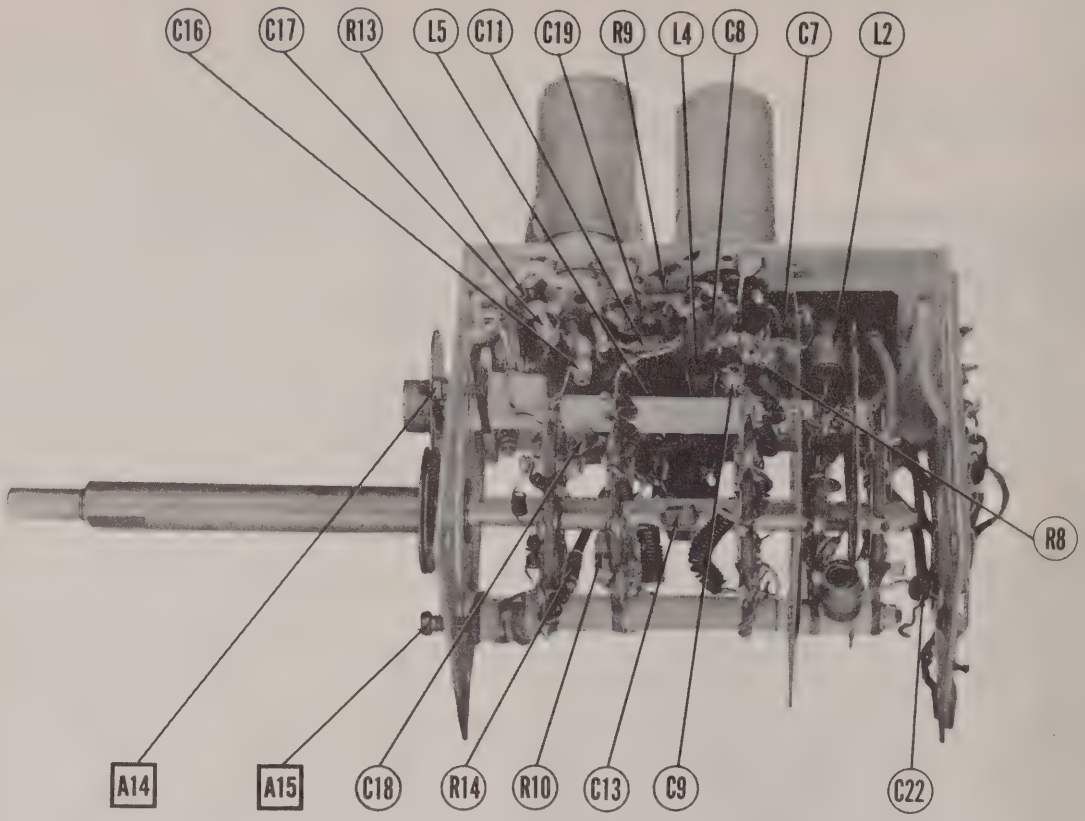
ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED.
§ TAKEN WITH VACUUM TUBE VOLTMETER
■ MEASURED FROM JUNCTION OF R55 and C1C
* DO NOT MEASURE

RESISTANCE READINGS

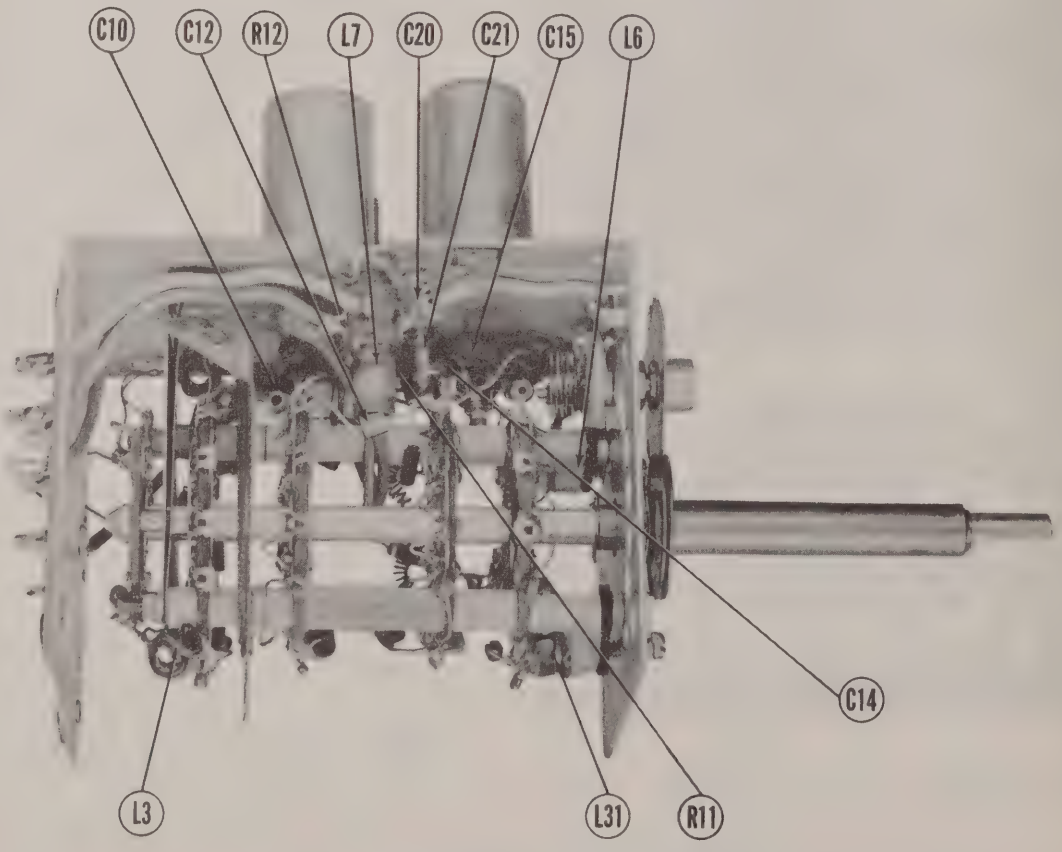
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AK5	112KΩ	0Ω	0Ω	.1Ω	■4.8KΩ	■4.8KΩ	0Ω		
V 2	6J6	■4.8KΩ	■150Ω	0Ω	.1Ω	232KΩ	18KΩ	0Ω		
V 3	6CB6	110KΩ	47Ω	.1Ω	0Ω	■2.7KΩ	■2.7KΩ	0Ω		
V 4	6CB6	110KΩ	47Ω	.1Ω	0Ω	■470Ω	■470Ω	0Ω		
V 5	6CB6	.5Ω	150Ω	.1Ω	0Ω	■940Ω	■940Ω	0Ω		
V 6	6AL5	.5Ω	1Meg	.1Ω	0Ω	0Ω	0Ω	5.6KΩ		
V 7	6AH6	5.6KΩ	0Ω	.1Ω	0Ω	†10KΩ	†68KΩ	1.5KΩ		
V 8	6AU6	25KΩ	8.5KΩ	.1Ω	0Ω	122KΩ	†15KΩ	8.5KΩ		
V 9	6AU6	1.2Ω	0Ω	.1Ω	0Ω	■1KΩ	■1KΩ	150Ω		
V 10	6AU6	100KΩ	0Ω	.1Ω	0Ω	■1KΩ	■1KΩ	150Ω		
V 11	6T8	Inf.	12KΩ	Inf.	.1Ω	0Ω	0Ω	0Ω	10Meg	■200KΩ
V 12	6W6GT	Inf.	0Ω	†930Ω	†700Ω	470KΩ	470KΩ	.1Ω	■150Ω	
V 13	12AV7	†20KΩ	14KΩ	0Ω	.1Ω	.1Ω	†25KΩ	1Meg	0Ω	0Ω
V 14	6SN7GT	470KΩ 970KΩ	#633KΩ	820Ω	40KΩ	†100KΩ	820Ω	.1Ω	0Ω	
V 15	6V6GT	0Ω	.1Ω	#8KΩ	#8KΩ	2.2Meg	Inf.	0Ω	470Ω 5KΩ	
V 16	6C4	†60KΩ	Inf.	0Ω	.1Ω	†60KΩ	200KΩ	100KΩ		
V 17	12AU7	†80KΩ	715KΩ	1.2KΩ	.1Ω	.1Ω	#300KΩ	100KΩ 350KΩ	1.2KΩ	0Ω
V 18	6AU5GT	470KΩ	.1Ω	33Ω	Inf.	#50Ω	Inf.	0Ω	†12KΩ	
V 19	6W4GT	Inf.	Inf.	70KΩ	Inf.	†55Ω	Inf.	.1Ω	0Ω	
V 20	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP 600Ω
V 21	5U4G	Inf.	30KΩ	Inf.	26Ω	Inf.	29Ω	Inf.	30KΩ	
V 22	20CP4	0Ω	12KΩ 35KΩ	PIN 10 †44Ω	PIN 11 50KΩ	PIN 12 .1Ω				

ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED
† MEASURED FROM PIN 2 OF V21
# MEASURED FROM PIN 3 OF V19
■ MEASURED FROM JUNCTION OF R55 AND C1C

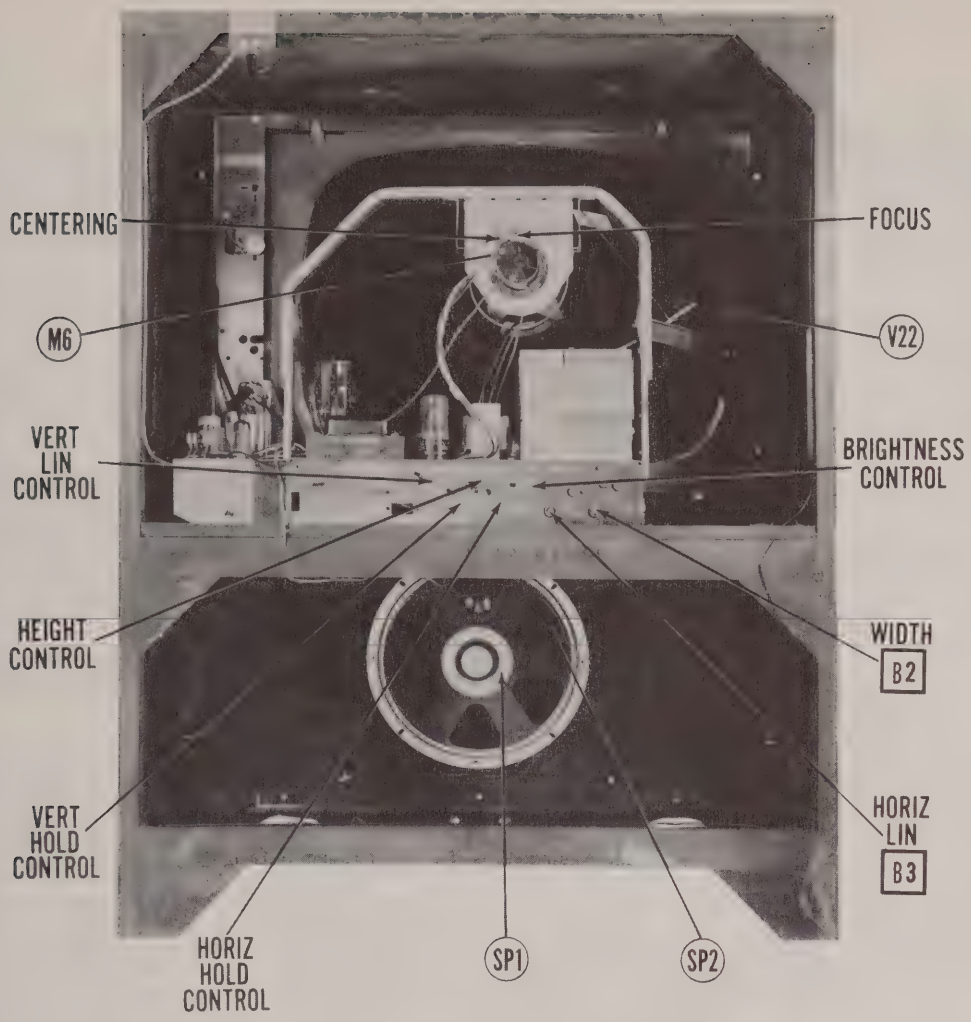
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Connect a short across L27.

Tune in the weakest available station.

Turn the horizontal hold control to the mid-position of the range over which the picture synchronizes.

Connect a VTVM between pin 2 of V17 and chassis, carfully note the reading obtained.

Remove the short from L27 and adjust the "ringing coil", (B1), within the range of synchronization, until the VTVM reading is the same as previously noted.

Adjust the width coil slug, (B2), until the picture fills the mask horizontally.

Adjust the horizontal lineaity slug, (B3) until the picture is symmetrical from left to right.

DISASSEMBLY INSTRUCTIONS

1. Remove seven push-dn type control knobs.
2. Remove eight wood screws from rear cover. Remove rear cover.
3. Disconnect built-in antenna.
4. Remove antenna termianl strip.
5. Disconnect speaker.
6. Remove four hex head bolts from chassis. Remove chassis.
7. Remove four hex head screws from speaker. Remove speaker.

NOTE: FOR PICTURE TUBE REMOVAL, IT IS NECESSARY TO REMOVE THE CHASSIS AS OUTLINED ABOVE.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: Westinghouse PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1A	RF Amplifier	6AK5	6AK5	7BD	Used in V-9886-6 and V-10279-1 Tuners
B	RF Amplifier	6BC5	6BC5	7BD	Used in V-9886-5 Tuner Only
V2	Converter	6J6	6J6	7BF	
V3	1st Video IF Amp.	6CB6	6CB6	6CK	
V4	2nd Video IF Amp.	6CB6	6CB6	6CK	
V5	3rd Video IF Amp.	6CB6	6CB6	6CK	
V6	Video Detector Noise Limiter	6AL5	6AL5	6BT	
V7	Video Amplifier	6AH6	6AH6	7BK	
V8	Keyed AGC	6AU6	6AU6	7BK	
V9	1st Sound IF Amp.	6AU6	6AU6	7BK	
V10	2nd Sound IF Amp.	6AU6	6AU6	7BK	
V11	Ratio Detector AF Amplifier	6T8	6T8	9E	
V12	Audio Output	6W6GT	6W6GT	7S	
V13A	Sync. Amplifier Sync. Separator	12AV7	12AV7	9A	
B	Sync. Amplifier Sync. Separator	12AT7	12AT7	9A	
V14	Vert. Mult.	6SN7GT	6SN7GT	8BD	
V15	Vert. Output	6V6GT	6V6GT	7AC	
V16	Horiz Phase Det.	6C4	6C4	6BG	
V17	Horiz Mult	12AU7	12AU7	8A	
V18	Horiz Output	6AU5GT	6AU5GT	6CK	
V19	Damper	5W4GT	5W4GT	4CG	
V20	B. V Rectifier	1B3GT	1B3GT	3C	
V21	L. V. Rectifier	5U4G	5U4G	5T	
V22A	Picture Tube	20CP4	20CP4	12D	
B	Picture Tube	20DP4	20DP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Westinghouse PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	450	V-9891	AF82J66H		UPT4445-3335		TVL-4720	▬ Filter ▮ Filter ▲ Filter Output Cathode
B	40	450							
C	30	350							
D	30	350							
C2A	30	450	V-10306-1	AF62J30B		UPT4145 V10		TVL-3753	▬ Vert. Output Dec. ▮ Decoupling ▲ Vert. Output Cathode
B	10	450							
C	150	50							
C3	10	250	V-10117	PRS250/12		BR1025		TVA-1504	V. Amp. Screen
C4	4	50	V-4637	PRS150/4		BR550		TVA-1303	Stabilizing Cap
C5	30	450	V-6570	PRS450/30		BR3045A		TVA-1711	Output Decoupling
C6	10	450	V-10293-1	PRS450/10		BR1045A		TVA-1705	Decoupling
C7	15			SI15	D6-150		GP1K-150	19C22	RF Coupling
C8	800			BPD-0008	DD-801		801-001	19C1	RF Amp. Dec.
C9	470			SI470	D6-471		GP2K-471	19C15	RF Amp. Dec.
C10	680			SI680	D6-681		GP2K-681	19C17	AGC Filter
C11	.36								RF Coupling
C12	.5				TCZ-.5				RF Coupling
C13	1.8								RF Coupling
C14	25			SI25	D6-250		GP1K-250	19C27	RF Coupling
C15	.68				TCZ-.68				Osc. Coupling
C16	10			SI10NPO	TCZ-10		NP0K-100	19C3	Osc. Grid Cap
C17	1.5						N330K-1R5		Osc. Feedback
C18	.68				TCZ-.68				Fixed Trimmer
C19	1000			BPD-001	DD-102		801-001	19C1	Conv. Filament
C20	15			SI15	D6-150		GP1K-150	19C22	Fixed Trimmer
C21	680			SI680	D6-681		GP2K-681	19C17	RF Bypass
C22	680			SI680	D6-681		GP2K-681	19C17	Filament Bypass
C23	5000		V-5596	BPD-005	DD-502	1D5D5	801-005	29C1	RF Bypass
C24	12		R3CC20SL120K	SI12	D6-120		GP1K-120		Fixed Trimmer
C25	800		V-9863-1	BPD-0008	DD-801	1W5T8	801-001	19C1	AGC Filter
C26	1.5		V-9925-1	SIL.5NPO	TCZ-1.5		NP0K-1R5		LF Coupling
C27	800		V-9863-1	BPD-0008	DD-801	1W5T8	801-001	19C1	1st V. IF Dec.
C28	800		V-9863-1	BPD-0008	DD-801	1W5T8	801-001	19C1	AGC Filter
C29	800		V-9863-1	BPD-0008	DD-801	1W5T8	801-001	19C1	2nd V. IF Dec.
C30	800		V-9863-1	BPD-0008	DD-801	1W5T8	801-001	19C1	2nd V. IF Fil.
C31	800		V-9863-1	BPD-0008	DD-801	1W5T8	801-001	19C1	3rd V. IF Dec.
C32	800		V-9863-1	BPD-0008	DD-801	1W5T8	801-001	19C1	3rd V. IF Fil.
C33	800		V-9863-1	BPD-0008	DD-801	1W5T8	801-001	19C1	V. Det. - Noise Lim. Fil.
C34	5000		V-5596	BPD-005	DD-502	1D5D5	811-005	29C1	RF Bypass
C35	270	500	RCM20B271K	SI270	D6-271	5W5T25	GP2K-271	19C31	Video Coupling
C36	.05	400	RCP10W4503M	P488-05	DF-503	PTE4S5		4TM-S5	Video Coupling
C37	.1	400	RCP10W4104M	P488-1	DF-104	PTE4P1		4TM-P1	Pic. Tube Grid
C38	5000		V-5596	BPD-005	DD-502	1D5D5	811-005	29C1	Pic. Tube Grid
C39	4.7		V-9926-3	SI4.7NP0	TCZ-4.7	5R5V5	NP0K-4R7	MS-55	S. IF Coupling
C40	47	500	RCM20B470K	I469-00005	TCZ-47	5R5Q5	NP0-333-500	MS-45	Fixed Trimmer
C41	5000		V-5596	BPD-005	DD-502	1D5D5	811-005	29C1	RF Bypass
C42	.002	500	RCP10W6202M	P688-002	D6-202	PTE6D2	GP2-333-202	6TM-D2	1st. S. IF Decoupling
C43	5000		V-5596	BPD-005	DD-502	1D5D5	811-005	29C1	1st. S. IF Cathode
C44	47	500	RCM20B470K	I469-00005	TCZ-47	5R5Q5	NP0-333-500	MS-45	Fixed Trimmer
C45	47	500	RCM20B470K	I469-00005	TCZ-47	5R5Q5	NP0-333-500	MS-45	S. IF Coupling
C46	5000		V-5596	BPD-005	DD-502	1D5D5	811-005	29C1	2nd. S. IF Decoupling
C47	5000		V-5596	BPD-005	DD-502	1D5D5	811-005	29C1	2nd. S. IF Cathode
C48	470		R5CC20ZY471K	SI470	D6-471	5W5T5	GP2K-471	19C15	Diode Load Cap.
C49	.001	200	RCP10W2102M	P688-001	D6-102	PTE6D1	GP2L-102	6TM-D1	De-emphasis
C50	.02	400	RCP10W4203M	P488-02	DF-203	PTE4S2		4TM-S2	Audio Coupling
C51	.01	400	RCP10W4103M	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Tone Comp.
C52	.01	400	RCP10W4103M	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Audio Coupling
C53	150	500	RCM20B151M	I468-00015	D6-151	5W5T15	GP2K-151	1FM-315	AF Amp. Plate
C54	.0047	400	RCP10W4502M	P688-0047	D6-472	PTE6D5	GP2-333-472	6TM-D47	Audio Coupling
C55	.01	400	RCP10W4103M	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Tone Comp.
C56	.002	600	RCP10W6202M	P688-002	D6-202	PTE6D2	GP2-333-202	6TM-D2	Output Plate
C57	.05	400	RCP10W4503M	P488-05	DF-503	PTE4S5		4TM-S5	AGC Filter
C58	.05	400	RCP10W4503M	P488-05	DF-503	PTE4S5		4TM-S5	AGC Filter
C59	270	500	RCM20B271K	SI270	D6-271	5W5T25	GP2K-271	19C31	Sync. Coupling
C60	.01	400	RCP10W4103M	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Sync. Coupling
C61	.25	400	RCP10W4254M	P488-25		GT4P25		4TM-P25	Sync. Coupling
C62	22	500	RCM20B220K	SI22	D6-220	5W5Q25	GP1K-220	19C23	Noise Limiter Plate

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Westinghouse PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C63A	2000		*V-9213	P688-002	*	GP2-333-202	6TM-D2		Integrator Net.
B	5000			P688-005	PC-100	GP2-333-502	6TM-D5		Integrator Net.
C	5000			P688-005	PTE6D5	GP2-333-502	6TM-D5		Integrator Net.
C64	5000		V-5596	BPD-005	DD-502	1D5D5	811-005	29C1	Sync. Amp. -Sep. Fil.
C65	.01	400	RCP10W4103K	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Vert. MV Feedback
C66	.05	400	RCP10W4503M	P488-05	DF-503	PTE4S5		4TM-S5	Vert. MV Cathode
C65	.1	400	RCP10W4104M	P488-1		PTE4P1		4TM-P1	Vert. Discharge
C68	.1	600	V-6023-4104M	P688-1	DF-104	PTE6P1		6TM-P1	Vert. Sweep Coupling
C69	100	500	RCM20B101K	I468-0001	D6-101	5W5T1	GP1K-101	1FM-31	Hor. Sync. Coupling
C70	.001	400	RCP10W4102M	P688-001	D6-102	PTE6D1	GP2L-102	6TM-D1	Hor. Phase Det. Cathode
C71	390	500	RCM20B471K	I468-0004	D6-391	5W5T4	GP2K-391	1FM-34	Hor. Phase Det. Plate †
C72	330	500	RCM20B331K	SI330	D6-331	5W5T3	GP2K-331	19C14	Hor. Feedback
C73	.005	400	RCP10W4502M	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	AFC Filter
C74	.05	400	RCP10W4503M	P488-05	DF-503	PTE4S5		4TM-S5	AFC Filter
C75	.01	400	RCP10W4103M	P488-01	D6-103	PTE4S1	GP-333-103	4TM-S1	AFC Filter
C76	180	500	RCM20C181J	I469-0002	D6-181	5R5T2	GP2K-181	MS-32	Hor. MV Feedback
C77	120	500	RCM20B121K	SII20	D6-121	5W5T15	GP2K-121	19C29	Hor. MV Plate
C78	.1	400	RCP10W4104M	P488-1	DF-104	PTE4P1		4TM-P1	Hor. MV Decoupling
C79	.1	600	RCP10W6104M	P688-1	DF-104	PTE4P1		6TM-P1	Hor. MV Decoupling
C80	3900	500	RCM30C392K	1464-004		1DR5D4		MS-24	Fixed Trimmer
C81	820	500	RCM20C821K			2R5T8		MS-38	Hor. Discharge
C82	.01	600	RCP10M6103M	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Hor. Sweep Coupling
C83	.1	600	RCP10M6104M	P688-1	DF-104	PTE6P1		6TM-P1	Hor. Output Screen
C84	.1	400	RCP10W4104M	P488-1	DF-104	PTE4P1		4TM-P1	Hor. Output Cathode
C85	.06	600	RCP10M6603M	P688-06		GT6S6		6TM-S6	Damper Filter
C86	.06	600	RCP10M6603M	P688-06		GT6S6		6TM-S6	Damper Filter
C87	.25	400	RCP10W4254M	P488-25		GT4P25		4TM-P25	Hor. Sweep Coupling
C88	5000		V-5596	BPD-005	DD-502	1D5D5	811-005	29C1	RF Bypass
C89	500	20000	V-9901-2	HV20C	TV2-502				H. V. Filter
C90	5000		V-5596	BPD-005	DD-502	1D5D5	811-005	29C1	Filament Bypass
C91	.01	600	V-5040-15	P688-01	D6-103	PTE6S1	821-01	6TM-S1	Line Filter
C92	.01	600	V-5040-15	P688-01	D6-103	PTE6S1	821-01	6TM-S1	Line Filter

* Items C63A, C63B, C63C, R66A, R66B, and R66C are combined into one unit.
† Some models use 470MMF in this application.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Westinghouse PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	REPLACEMENT DATA: CENTRALAB PART No.	INSTALLATION NOTES
R1A	1Meg	½	V10130-3	Q13-137	AG-63-Z	B-70	Tone Control
B	Shaft		Not req.	Not req.	FS-3	Not req.	Attach to R1A per instructions
R2A	1500Ω	½	V-9877			SBBT-565-8	Contrast Control - Front
B	500KΩ	½					Volume Control & SW -Tapped ⑤ 50KΩ Rear
R3A	5000Ω	½	V-6463	Q11-114	AG-19-8	AN-10	Vert. Linearity Control
B	Shaft		Not req.	Not req.	RS-2	AK-4	Attach to R3A per instructions
R4A	500KΩ	½	V-9894-1	Q11-133	AG-58-8	AN-59	Vert. Hold Control
B	Shaft		Not req.	Not req.	RS-2	AK-4	Attach to R4A per instructions
R5A	500KΩ	½	V-9813-3	Q11-133	AG-58-8	B-59	Height Control
B	Shaft		Not req.	Not req.	RS-2	Not req.	Attach to R5A per instructions
R6A	250KΩ	½	V-9893-1	Q11-130	AG-55-8	AN-50	Horiz. Hold Control
B	Shaft		Not req.	Not req.	RS-2	AK-4	Attach to R6A per instructions
R7A	50KΩ	½	V-9916-1	Q11-123	AG-44-8	AN-31	Brightness Control
B	Shaft		Not req.	Not req.	RS-2	AK-4	Attach to R7A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: WESTINGHOUSE PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ± 10% UNLESS OTHERWISE SPECIFIED
R8	2200Ω 20%	½		BTS-2200	RF Amp. Grid
R9	4700Ω	½		BTS-4700	RF Amp. Decoupling
R10	5600Ω	½			Mixer Grid Coil Shunt
R11	12KΩ	½			Mixer Grid
R12	220KΩ 20%	½			Mixer Grid
R13	18KΩ	½		BTS-18K	Osc. Grid
R14	4700Ω 20%	½		BTS-4700	Osc. Plate - See Note 4
R15	150Ω	½	RC20AE151K	BTS-150	Decoupling
R16	10KΩ 20%	½	RC20AE103M	BTS-10K	AGC Network
R17	10KΩ 20%	½	RC20AE103M	BTS-10K	AGC Network
R18	100KΩ	½	RC20AE104K	BTS-100K	AGC Network
R19	47Ω	½	RC20AE470K		1st. Video IF Amp. Cathode
R20	2700Ω	½	RC20AE272K	BTS-2700	1st. Video IF Amp. Decoupling - See Note 1
R21	10KΩ 20%	½	RC20AE103M	BTS-10K	AGC Network
R22	4700Ω 5%	½	V-9927-2	BTS-4700-5%	2nd. Video IF Transformer Shunt
R23	47Ω	½	RC20AE470K		2nd. Video IF Amp. Cathode
R24	470Ω 20%	½	RC20AE471M	BTS-470	Decoupling
R25	3000Ω 5%	½	V-9927-5		3rd. Video IF Transformer Shunt
R26	150Ω	½	RC20AE151K	BTS-150	3rd. Video IF Amp. Cathode
R27	470Ω 20%	½	RC20AE472M	BTS-470	3rd. Video IF Amp. Decoupling
R28	8200Ω 5%	½	V-9927-4	BTS-8200-5%	4th. Video IF Transformer Shunt
R29	1Meg 20%	½	RC20-AE105M	BTS-1Meg	Noise Limiter Diode Load
R30	5600Ω 5%	½	V-9927-3	BTS-5600-5%	Video Det. Diode Load
R31	4700Ω	½	RC20AE 472K	BTS-4700	Keyed AGC Grid
R32	22KΩ 20%	½	RC20AE223M	BTS-22K	AGC Network
R33	3300Ω	1	RC30AE332K	BTA-3300	Voltage Divider
R34	10KΩ	2	RC40AE103K	BTB-10K	Voltage Divider
R35	68KΩ	1	RC30AE683K	BTA-68K	Video Amp. Screen
R36	4700Ω	1	RC30AE472K	BTA-4700	Video Amp. Plate
R37	4700Ω	½	RC20AE472K	BTA-4700	Video Amp. Plate
R38	100KΩ	½	RC20AE104K	BTS-100K	Isolation
R39	68KΩ	½	RC20AE683K	BTS-68K	Voltage Divider
R40	12KΩ 20%	½	RC20AE123M	BTS-12K	Picture Tube Grid
R41	100KΩ	½	RC20AE104K	BTS-100K	Picture Tube Cathode
R42	150Ω	½	RC20AE151K	BTS-150	1st. Sound IF Amp. Cathode
R43	1000Ω	½	RC20AE102K	BTS-1000	1st. Sound IF Amp. Decoupling
R44	100KΩ	½	RC20AE104K	BTS-100K	2nd. Sound IF Amp. Grid
R45	150Ω	½	RC20AE151K	BTS-150	2nd. Sound IF Amp. Cathode
R46	1000Ω	½	RC20AE102K	BTS-1000	2nd. Sound IF Amp. Decoupling
R47	12KΩ	½	RC20AE123K	BTS-12K	Ratio Det. Diode Load
R48	27KΩ	½	RC20AE273K	BTS-27K	De-emphasis
R49	10KΩ	½	RC20AE103K	BTS-10K	Tone Compensation
R50	10Meg	½	RC20AE106M	BTS-10Meg	AF Amp. Grid
R51	330KΩ	½	RC20AE334K	BTS-330K	AF Amp. Plate

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Westinghouse PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
R52	120Ω	½	RC20AE121M		Parasitic Suppressor - See Note 2
R53	470KΩ	½	RC20AE474K	BTS-470K	Feedback
R54	470KΩ	½	RC20AE474K	BTS-470K	Output Grid
R55	150Ω	1	RC30AE151K	BTA-150	Output Cathode
R56	680Ω	5	V-6984-2	1 3/4A-700	Output Decoupling - Wire Wound
R57	10KΩ 20%	½	RC20AE103M	BTS-10K	Isolation
R58	470KΩ	½	RC20AE474K	BTS-470K	Sync. Amp. Grid
R59	12KΩ	½	RC20AE123K	BTS-12K	Sync. Amp. Plate
R60	470KΩ	½	RC20AE474K	BTS-470K	Isolation
R61	1Meg	½	RC20AE105K	BTS-1Meg	Sync. Sep. Grid
R62	150KΩ	½	RC20AE154K	BTS-150K	Sync. Sep. Plate
R63	15KΩ	5	V-6984-15	1 3/4A-15K	Decoupling - Wire Wound
R64	22KΩ	½	RC20AE223K	BTS-22K	Voltage Divider
R65	1500Ω	½	RC20AE152K	BTS-1500	Voltage Divider
R66A	22KΩ	½	V-9213 *	BTS-22K	Integrator
B	8200Ω	½		BTS 8200	Integrator
C	8200Ω	½		BTS-8200	Integrator
R67	820Ω	½	RC20AE821K	BTS-820	Vert. MV Cathode
R68	100KΩ	½	RC20AE104K	BTS-100K	Vert. MV Plate - See Note 5
R69	470KΩ	½	RC20AE474K	BTS-470K	Vert. MV Grid
R70	100KΩ	½	RC20AE104K	BTS-100K	Vert. MV Decoupling
R71	3900Ω	½	RC20AE392K	BTS-3900	Vert. Peaking
R72	2.2Meg	½	RC20AE225K	BTS-2.2Meg	Vert. Output Grid
R73	470Ω	½	RC20AE471K	BTS-470	Vert. Output Cathode
R74	7500Ω	10	V-9600-3	1 3/4A-7500	Vert. Output Decoupling - Wire Wound
R75	100KΩ	½	RC20AE104K	BTS-100K	Horiz. Feedback
R76	100KΩ	½	RC20AE104K	BTS-100K	Horiz. Phase Det. Grid
R77	100KΩ	½	RC20AE104K	BTS-100K	Horiz. Phase Det. Cathode
R78	47KΩ	½	RC20AE473K	BTS-47K	Horiz. Phase Det. Plate
R79	470KΩ	½	RC20AE474K	BTS-470K	Horiz. AFC Filter
R80	47KΩ	½	RC20AE473K	BTS-47K	Horiz. AFC Filter
R81	1200Ω	½	RC20AE122K	BTS-1200	Horiz. MV Cathode
R82	27KΩ	½	RC20AE273K	BTS-27K	Horiz. MV Plate
R83	56KΩ	1	RC30AE563K	BTA-56K	Horiz. MV Decoupling
R84	100KΩ	½	RC20AE104K	BTS-100K	Horiz. MV Grid - See Note 3
R85	270KΩ	½	RC20AE274K	BTS-270K	Horiz. MV Plate
R86	33KΩ	½	RC20AE333K	BTS-33K	Horiz. MV Decoupling
R87	12KΩ	½	RC20AE123K	BTS-12K	Horiz. Peaking
R88	120Ω 20%	½	RC20AE121M		Parasitic Suppressor - See Note 2
R89	470KΩ	½	RC20AE474K	BTS-470K	Horiz. Output Grid
R90	33Ω	1	RC30AE330K	BW-1-33	Horiz. Output Cathode
R91	12KΩ	10	V-9600-11	1 3/4A-12K	Horiz. Output Screen - Wire Wound
R92	5600Ω	½	RC20AE562K	BTS-5600	Horiz. Linearity Coil Shunt
R93	330KΩ	1	RC30AE334K	BTA-330K	HV Filter
R94	330KΩ	1	RC30AE334K	BTA-330K	HV Filter
R95	220KΩ 20%	1	RC30AE224M	BTA-220K	Isolation
R96	68KΩ	½	RC20AE683K	BTS-68K	Video Peaking Coil Shunt

Items R66A, R66B, R66C, C63A, C63B, and C63C are combined into one unit.

Note 1 Some models use 1000Ω resistor in this application.
Note 2 Some models use 150Ω resistor in this application.
Note 3 Some models use 150KΩ resistor in this application.
Note 4 Some models use series resistors in this application to obtain desired value.
Note 5 Some models use parallel resistors in this application to obtain desired value.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: WESTINGHOUSE PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.
T1	117VAC ⑤ 1.82A	650VCT ⑤ .225ADC	5VAC ⑤ 3A	6.3VAC ⑤ 3.5A	V9958-2	P-6314	P-3066 ①	PB-200

① Drill new mounting holes.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: WESTINGHOUSE PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	NOTES
T2	550Ω Tap29Ω	13Ω Tape .45Ω and 8.7Ω SEC. 2 0Ω	V-10214-1	A-8130	HV0-6		Horiz. Output Trans.
T3	640Ω	8Ω	V-6981-3	A-8112	A-3038	TS0-5	Vert. Output Trans.
T4A	12Ω		V-10045-4	DY-7	MDF-70		Horiz. Deflection Coil
B	45Ω						Vert. Deflection Coil

② Drill one new mounting hole

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: Westinghouse PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	INSTALLATION NOTES
T5	1.9KΩ	3.4Ω	230Ω	.8Ω	V-10288-1	A-3825 ②	A-2928	R0-2 ②	② Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP.	REPLACEMENT DATA: Westinghouse PART No.	REPLACEMENT DATA: VIKING PART No.	REPLACEMENT DATA: QUAM PART No.	NOTES
SP1	9 3/8"	P.M.	3.4Ω	V-9770-1	10J12	10A4A	

PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∽)	Westinghouse PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.240A	40Ω	1.4 Henries	V-6471-2	C-2326 ②	C-2974 ②	TR-3300②	② Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	Westinghouse PART No.	MEISSNER PART No.	IRC PART No.	
L2	Ant. Coil	0Ω	0Ω				Part of Tuner Part # V-9886-5 Or V-9886-6
L3	Ant. Coil	0Ω	0Ω				
L4	RF Coil	0Ω					
L5	Mixer Grid Coil	0Ω					
L6	Osc. Coil	0Ω					
L7	1st Video IF	0Ω	0Ω				
L8	Fil. Choke	0Ω		V-4886-2			
L9	1st Video IF Coupling Coil	0Ω	0Ω	V-9881-2			
L10	Sound Trap	.1Ω		V-9501-1			1.1 Microhenries (Black Dot)
L11	Fil. Choke	.1Ω		V-4886-1			
L12	2nd Video IF	.6Ω	.5Ω	V-9879			
L13	Fil. Choke	.1Ω					
L14	3rd Video IF	.6Ω	.5Ω	V-9879			
L15	4th Video IF	.6Ω	.5Ω	V-9880			
L16	Fil. Choke	1.6Ω		V-9099-4			
L17	Decoupling Coil	1.4Ω		V-4886-1			14 Microhenries (Yellow Dot)
L18	Peaking	8Ω		V-9915-1	19-1920		100 Microhenries
L19	Decoupling Coil	1.1Ω		V-4886-1			14 Microhenries
L20	Peaking	10Ω		V-9915-2	19-1923		350 Microhenries (Red Dot)
L21	Peaking	18Ω		V-9915-3	19-1923		500 Microhenries (Orange Dot)
L22	Decoupling Coil	1.1Ω		V-4886-1			14 Microhenries
L23	Fil. Choke	.1Ω		V-4886-2			1.1 Microhenries
L24	1st Sound IF	1.3Ω		V-9882-2			
L25	2nd Sound IF	1.3Ω		V-9882-2			
L26	Ratio Det. Trans.	4.3Ω	1.4Ω	V-9884			Tap at 1.4Ω
L27	Ringing Coil	65Ω		V-6764			
L28	Horiz. Lin.	20Ω		V-9960			
L29	Horiz. Width	1Ω	100Ω	V-9902			
L30	Fil. Choke	2.2Ω				CLA	2.7 Microhenries
L31	Osc. Coil	0Ω					Part of Tuner Part # V-9886-5 Or V-9886-6

FUSES

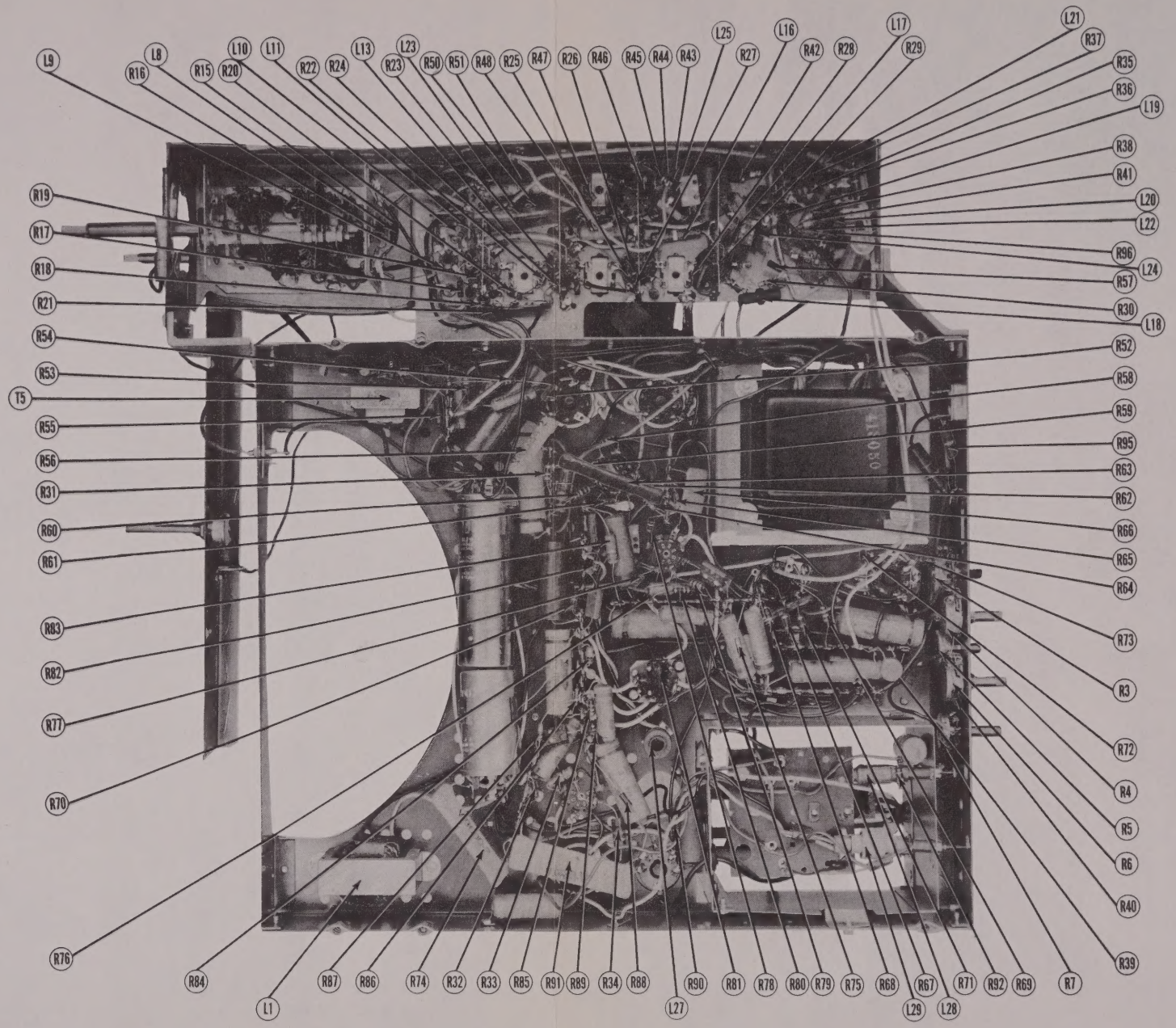
ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			WESTINGHOUSE PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M1	3AG Pigtail	.250			318.250 ③		③ Not used in all models.

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					Westinghouse PART No.		
M2	Bayonet	6-8	.15	Brown			Type #47
M3	Bayonet	6-8	.15	Brown			Type #47

MISCELLANEOUS

ITEM No.	PART NAME	Westinghouse PART No.	NOTES
M4A	RF Tuner	V-9886-5, - 6	
B	RF Tuner	V-10279-1	
C	RF Tuner	V-10278-1	
M5	Focus Magnet	V-10206-2	
M6	Ion Trap	V-9784-3	
A7	Trimmer	V-9876	



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION